IFAS: India's No. 1 Institute CSIR UGC NET, SET & All MSc. Entrance Exams

> The function of education is to teach one to think intensively and to think critically Intelligence plus character—that is the goal of true education

CSIR NET - GENERAL APTITUDE

QUANTITATIVE APTITUDE

L-3 Observational skills

IfAS

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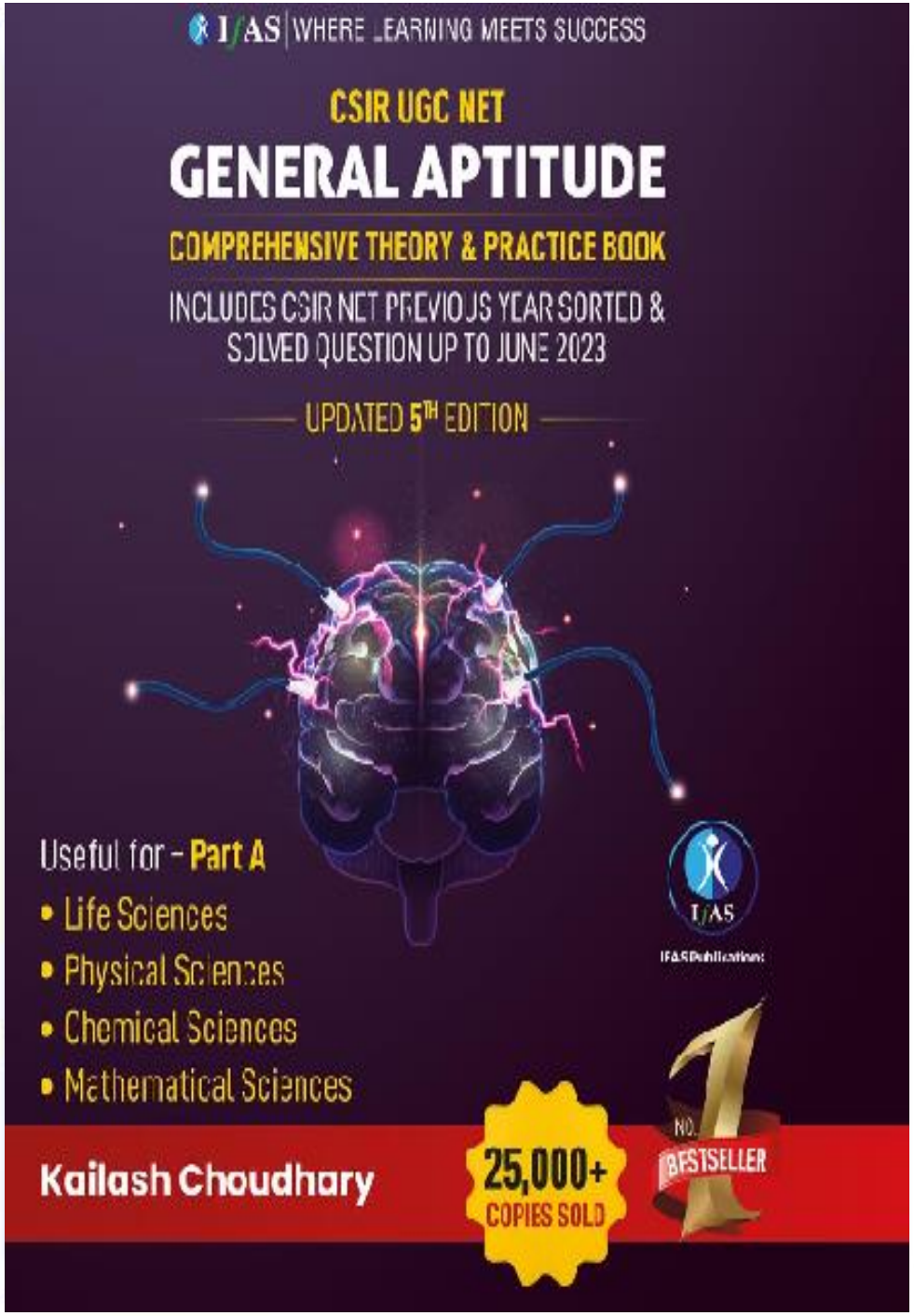
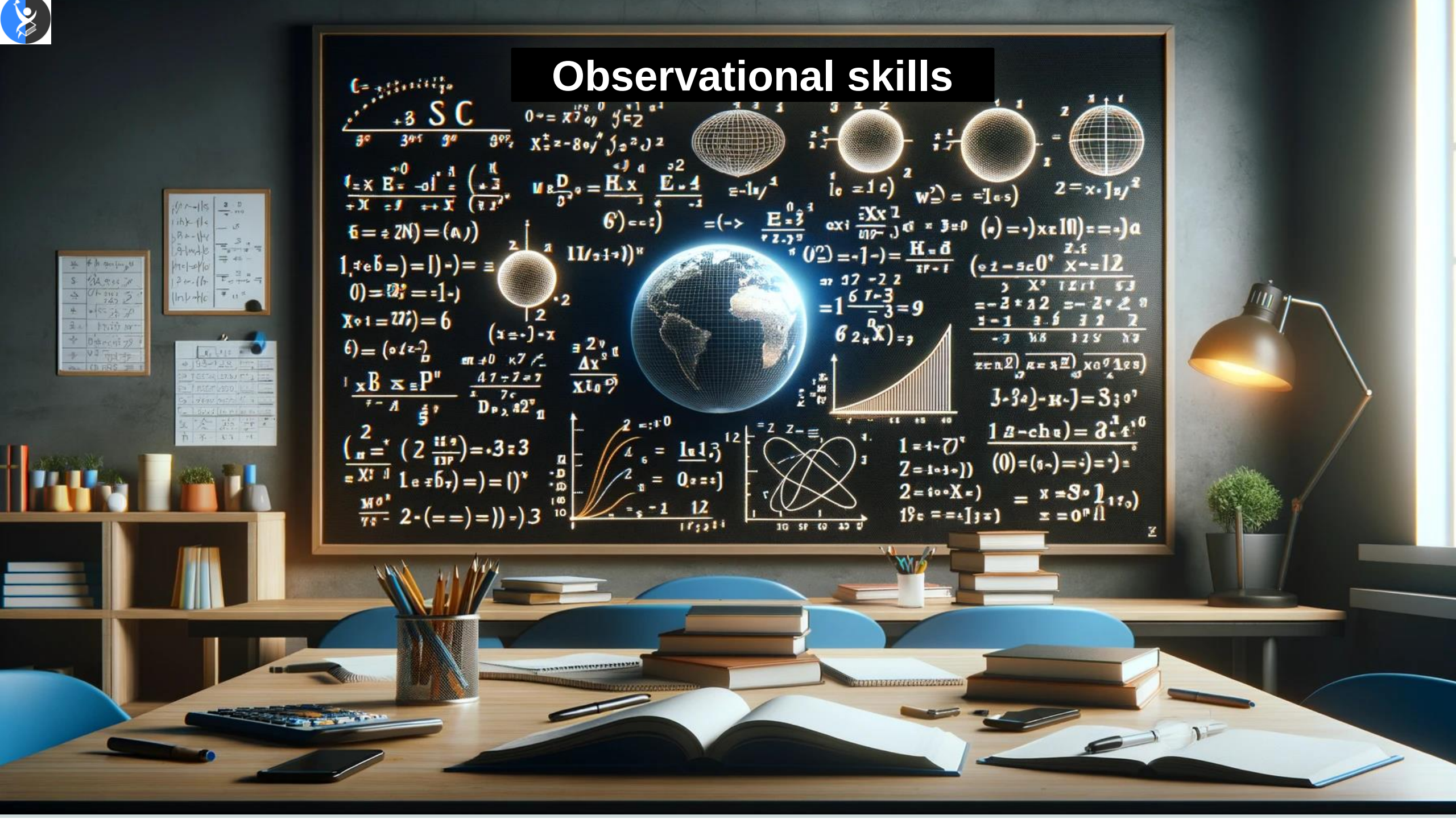


Topic Covered in Today's Session

1. Venn diagrams
2. Mirror and water images
3. Practice questions

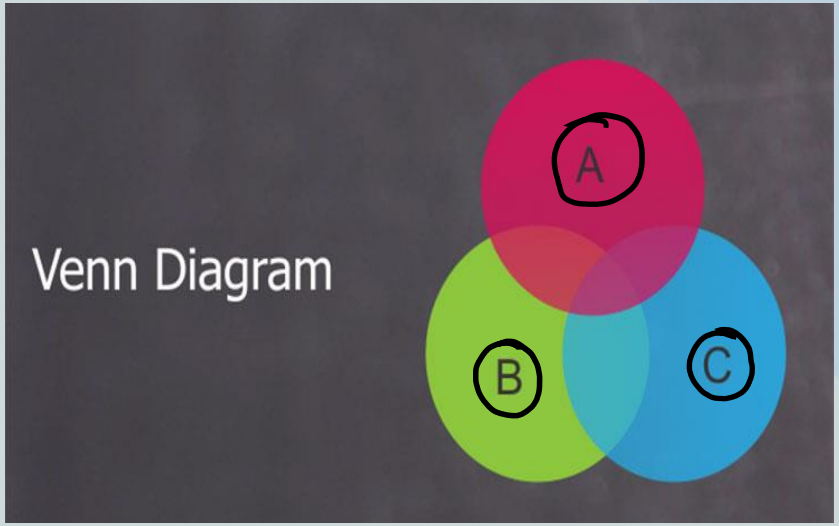
Observational skills

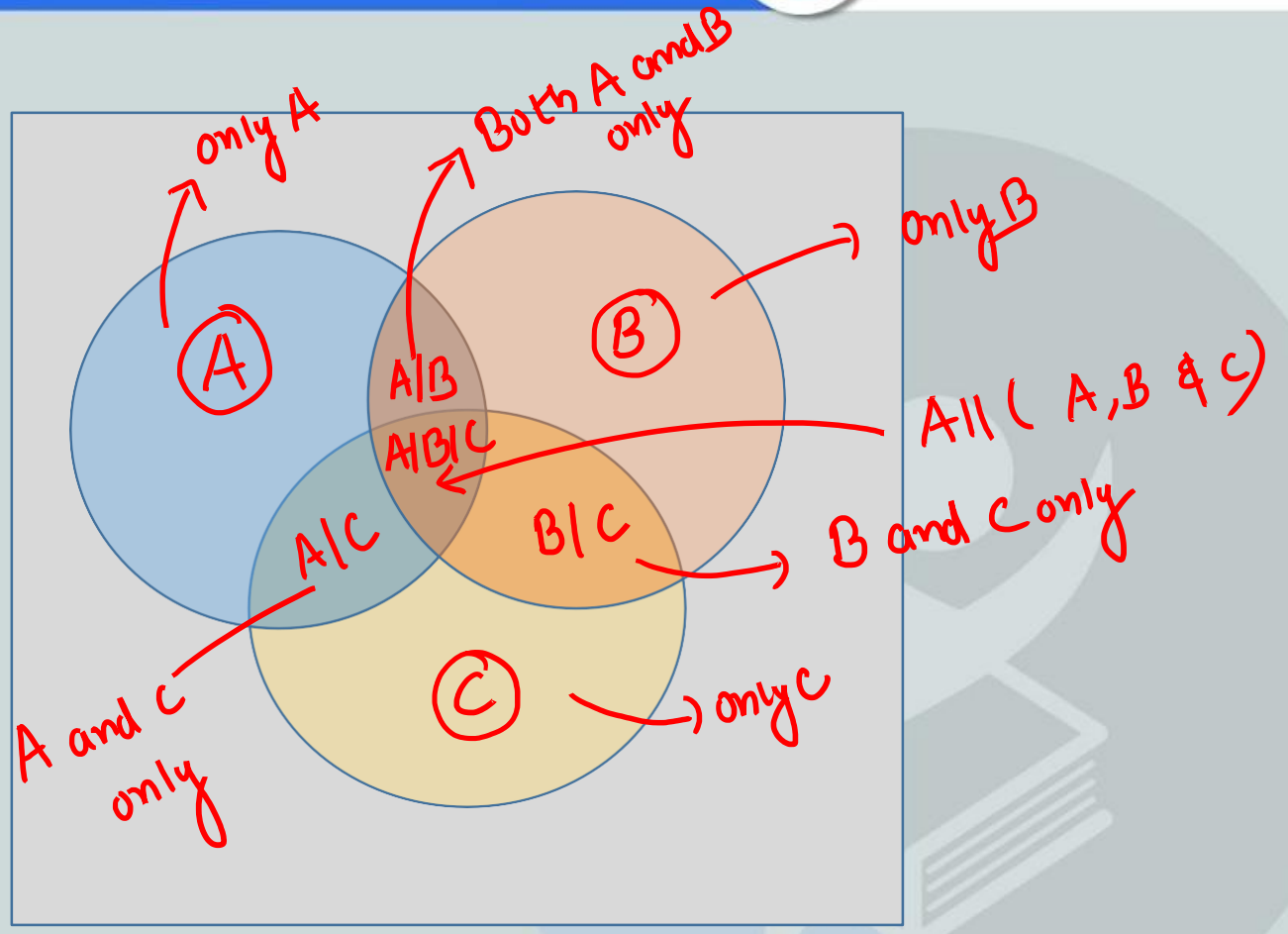


Venn diagrams

A Venn diagram is an illustration that uses circles to show the relationships among things or finite groups of things.

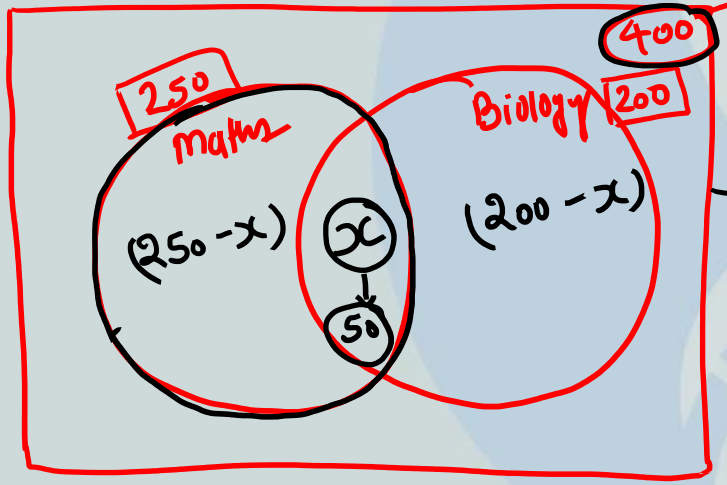
Venn diagrams help to visually represent the similarities and differences between two concepts.




only A
Both A and B only
only B
A
B
A∩B
A∩B∩C
All (A, B & C)
A∩C
B∩C
B and C only
C
A and C only
only C

Q1. In a junior college with 500 students, 250 students study Mathematics and 200 students study Biology. One hundred students study neither Mathematics nor Biology. How many students study both Mathematics and Biology ?

(A) 50 **(B) 100** **(C) 150** **(D) 250**



500
-100
400

Alt

Only math + only Bio + Both = 400

$250-x+200-x+x=400$

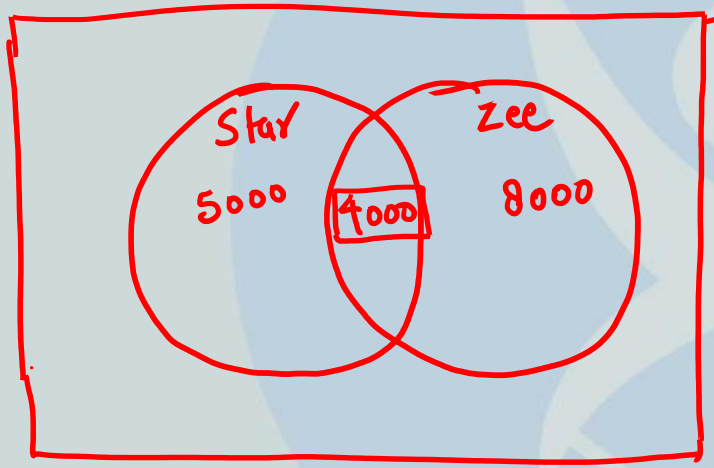
$450-x=400$

$x=50$

250
200
450 − 400 = 50 Any

Q2. There are 20000 people living in town . Out of them 9000 subscribe to Star TV Network and 12000 to Zee TV Network. If 4000 subscribe to both, how many do not subscribe to any of the two?

(1) 3000 (2) 2000 (3) 1000 (4) 4000

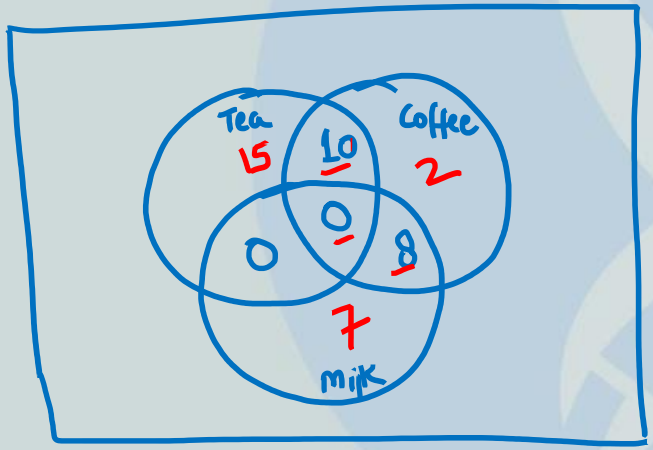


20000
−17000
3000 Ans

5000 → Star only
8000 → Zee only
4000 → Both
17000

Q3. In a picnic of elderly persons, 25 persons take tea, 20 persons take coffee and 15 persons take milk . Ten persons take both tea and coffee only and 8 persons take both milk and coffee only . None of them takes tea and milk both and everyone takes atleast one of the three beverages. How many persons went to the picnic?

(A) 25 (B) 35 (C) 42 (D) 60



only Tea = 25 − (10) = 15

only Coffee = 20 − (10 + 8) = 2

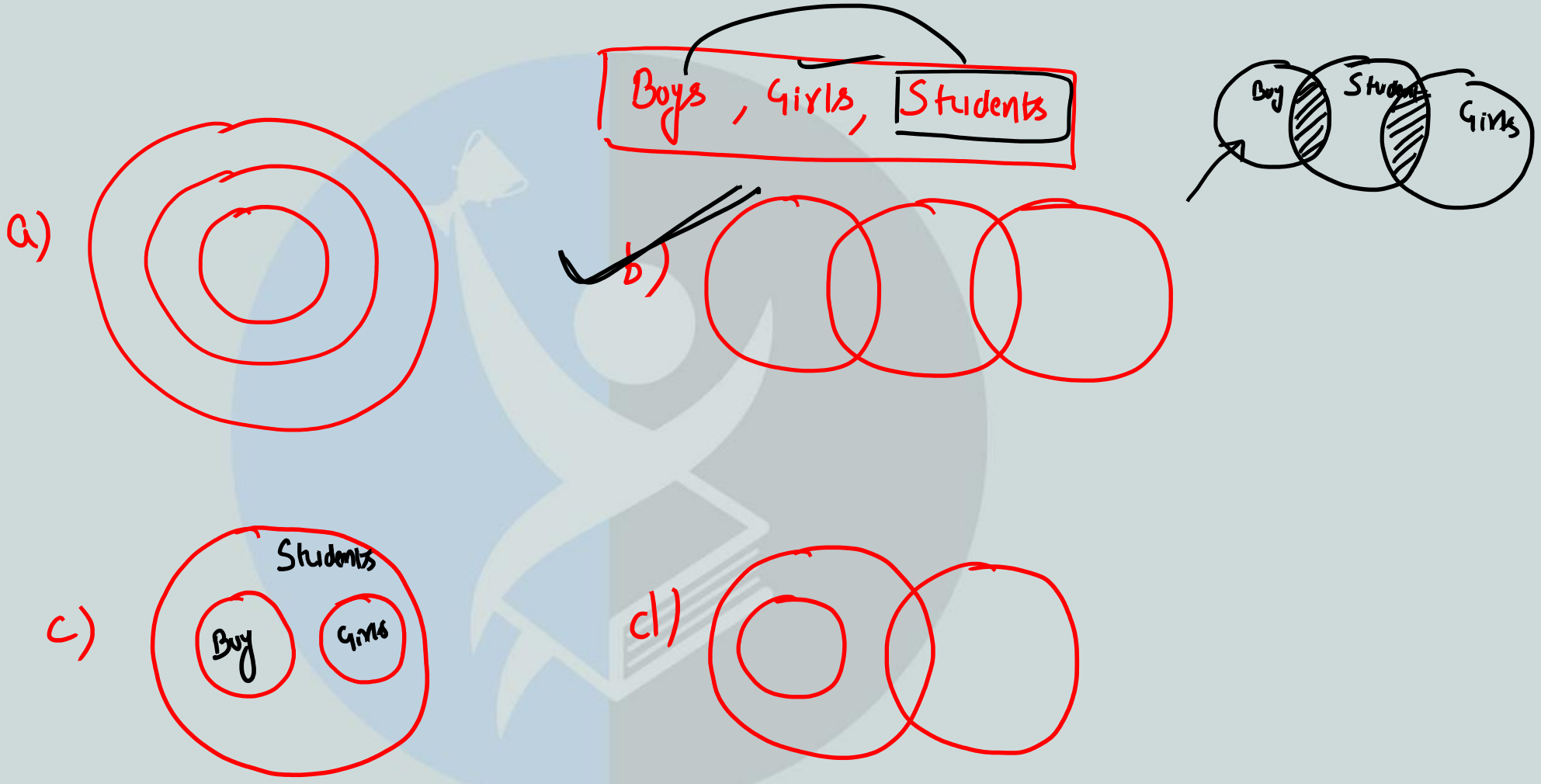
only milk = 15 − 8 = 7

Total Person = 15 + 2 + 7 + 10 + 8

= 42

Q4. Fourteen of the students in a class are girls. Eight students in the class wear blue shirts. Two are neither girls nor wear blue shirts. Five students who wear blue shirts are girls. How many students are there in the class?

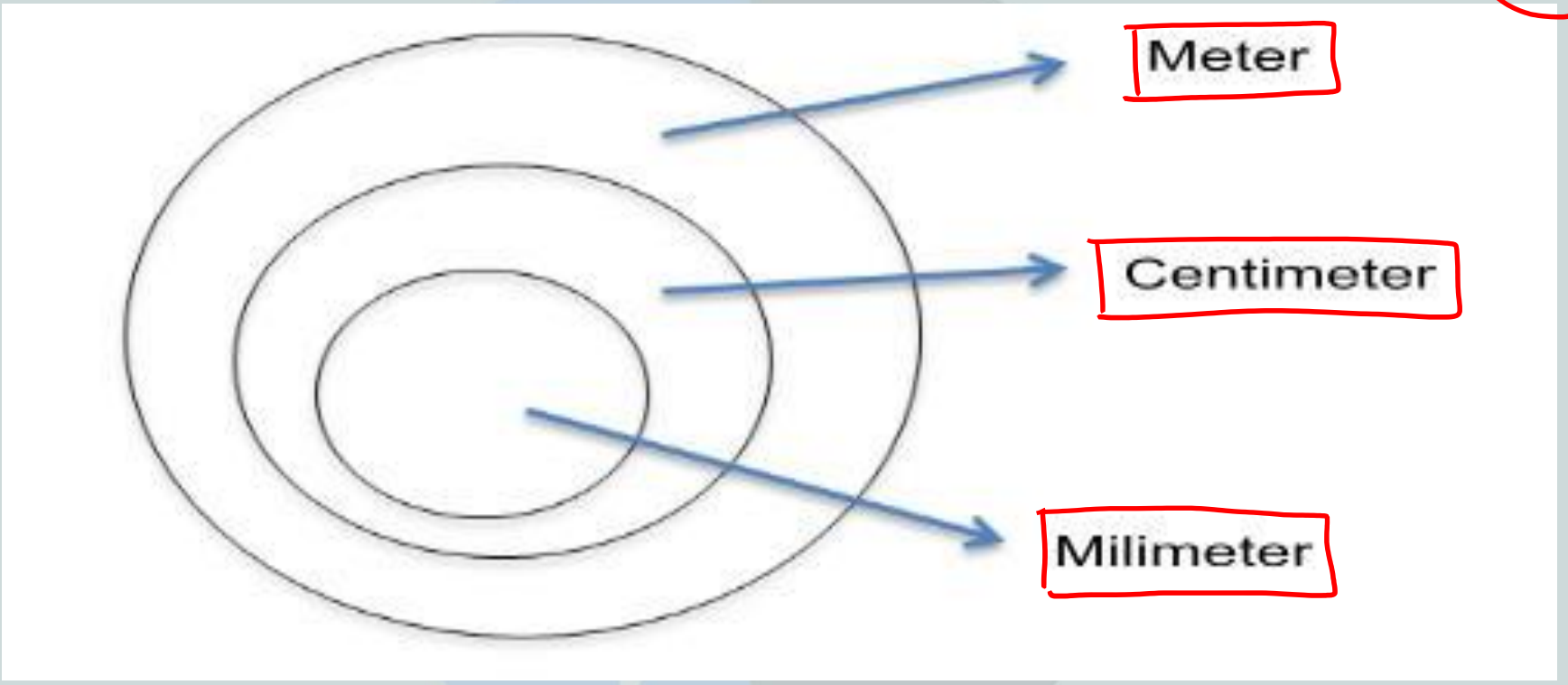
(1) 19 (2) 29 (3) 17 (4) 24


Boys , Girls, Students
a)
b)
Buy
Girls
c)
Students
Buy
Girls
d)

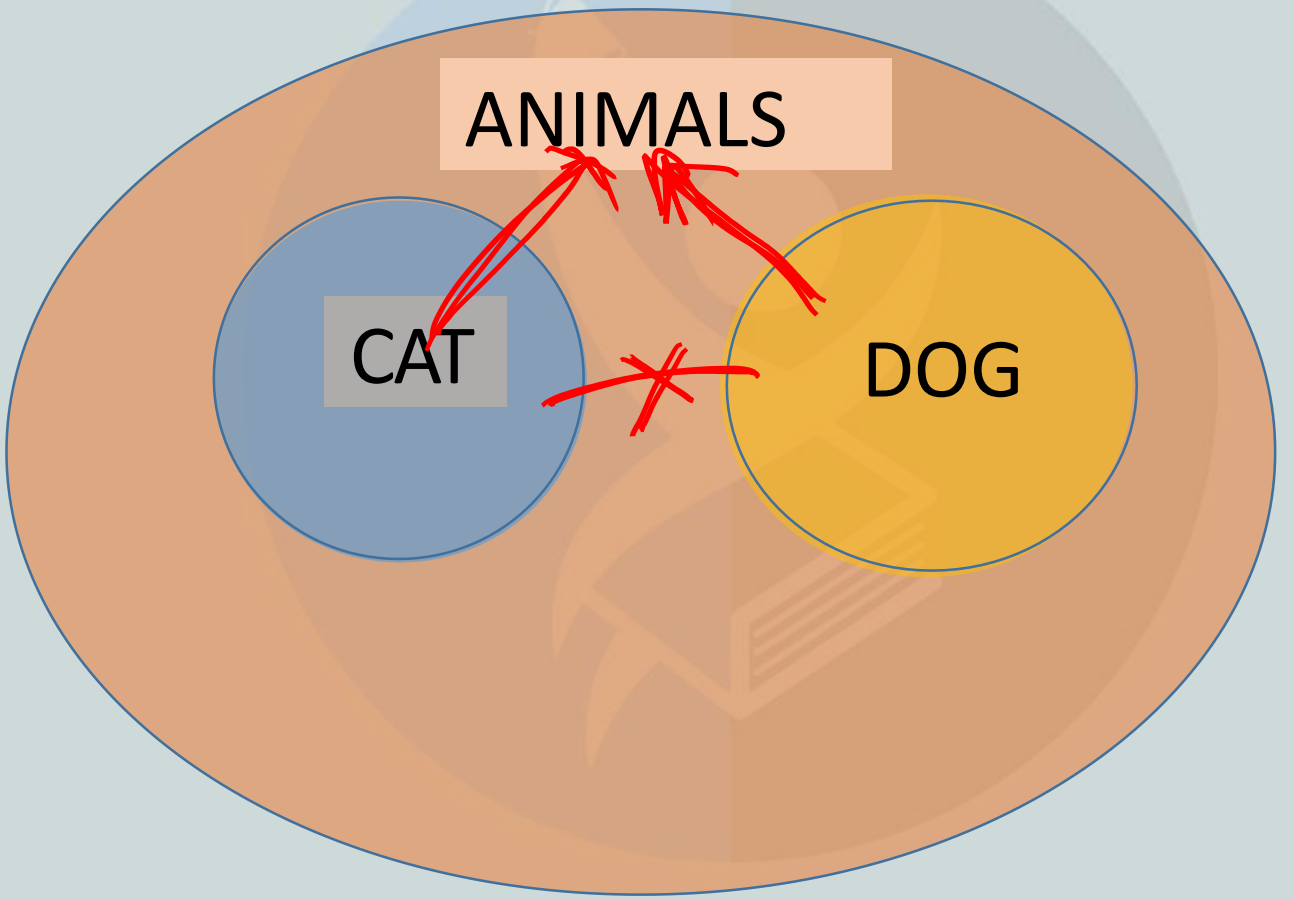
Conditions to Test the Validity of Arguments

Condition 1- Different Groups with no Connection

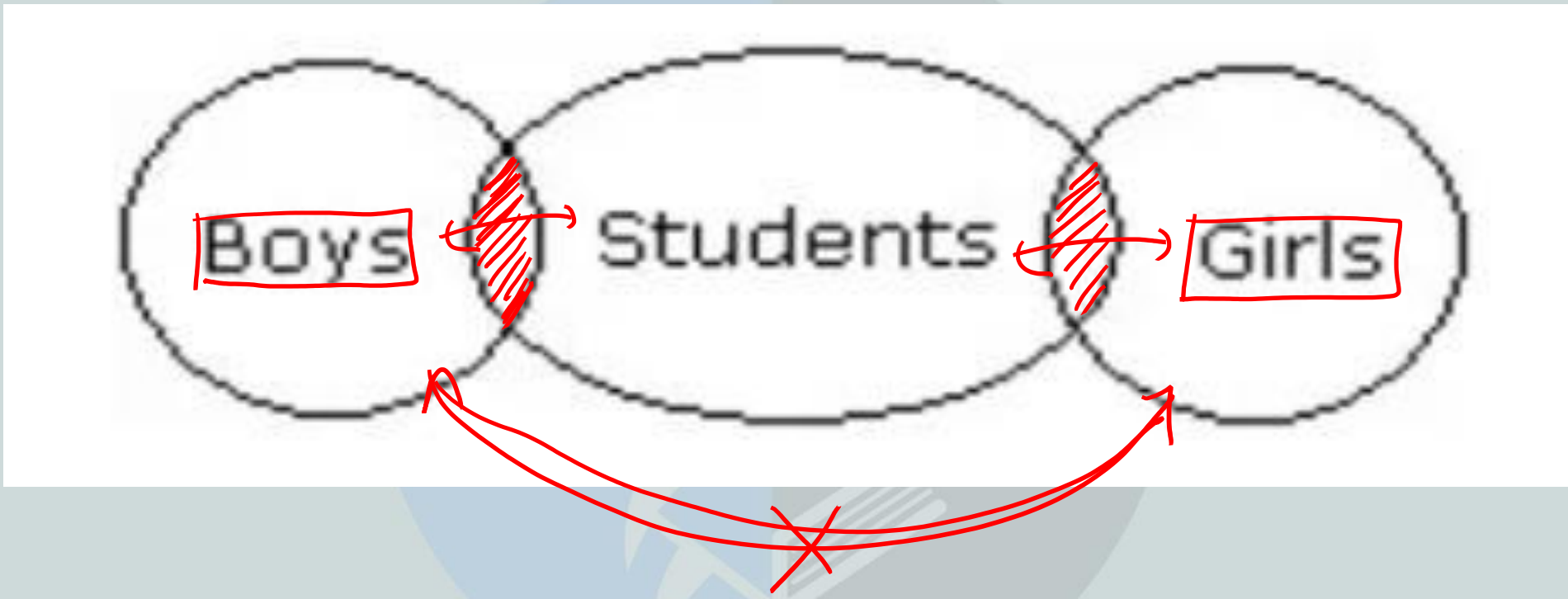
Condition 2- Sequential Relationship Between Items



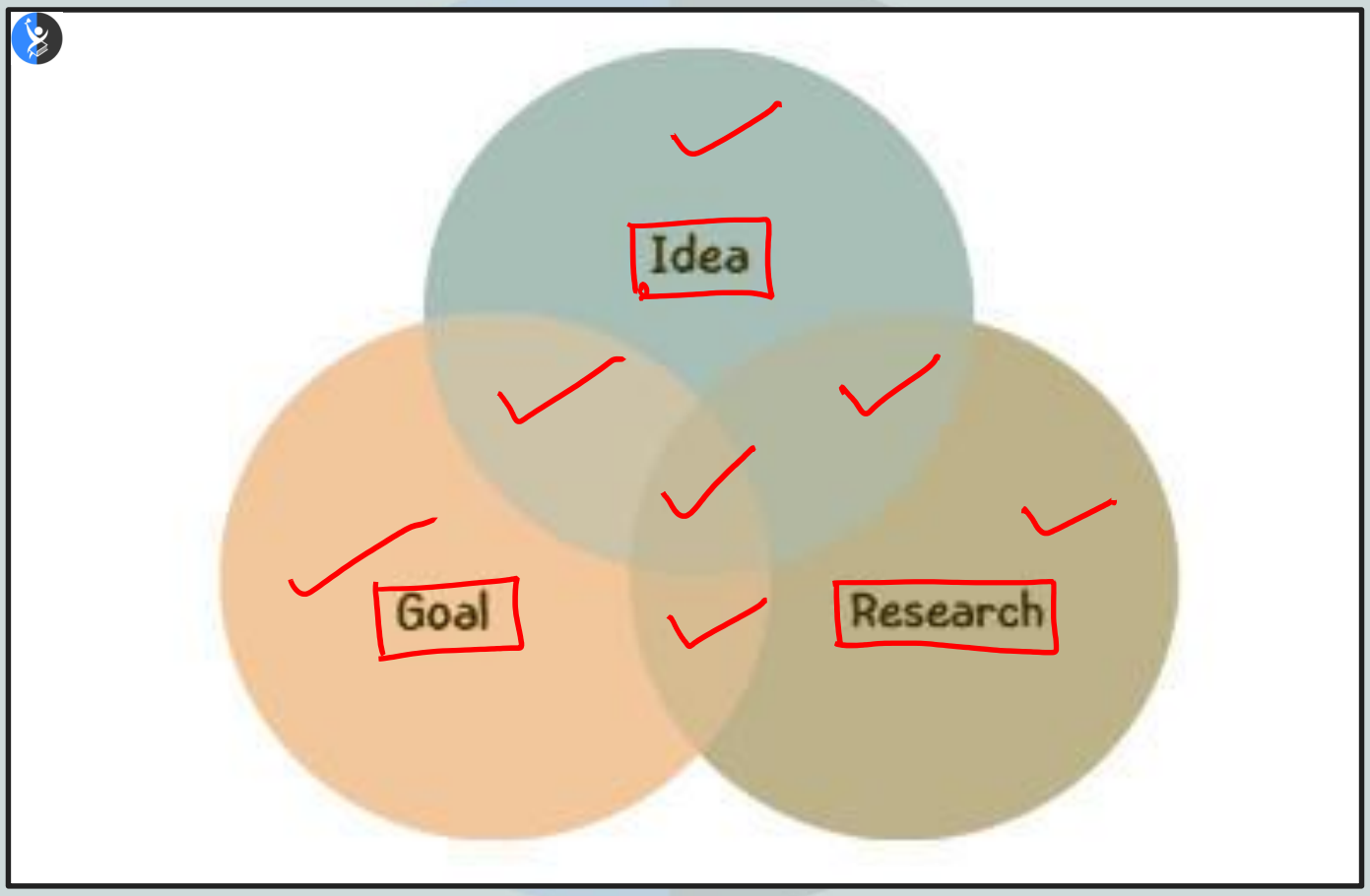
Condition 3- Two Items Entirely Related to the Third



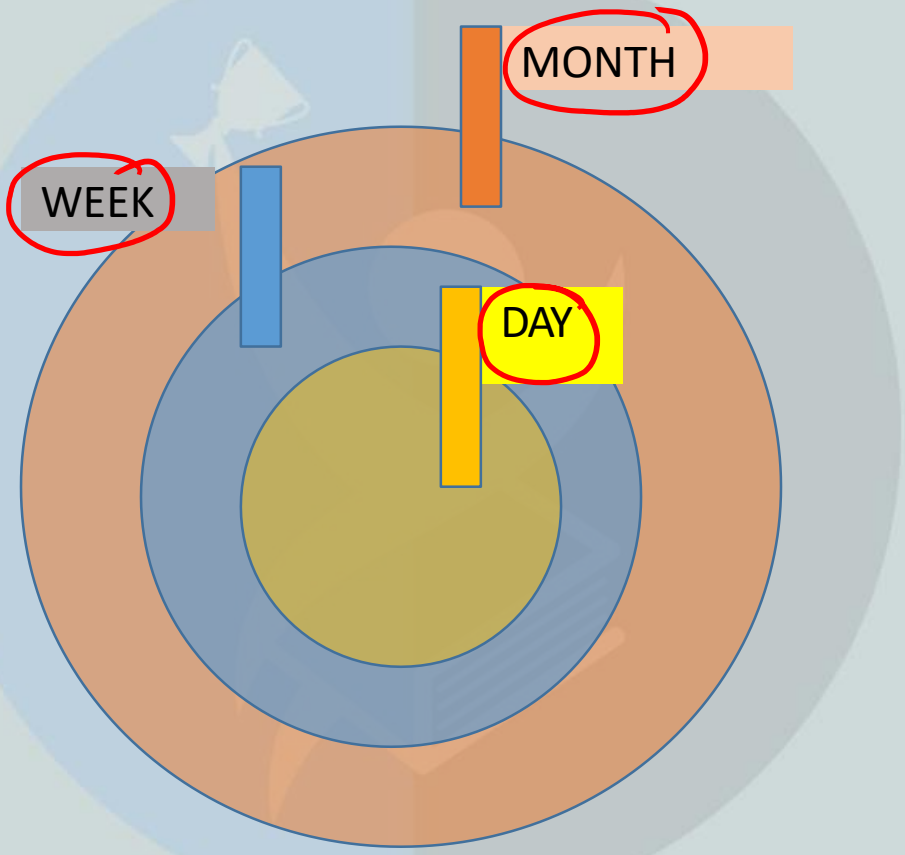
Condition 4 – Partial Relation Between Two items, which are Different from the Third



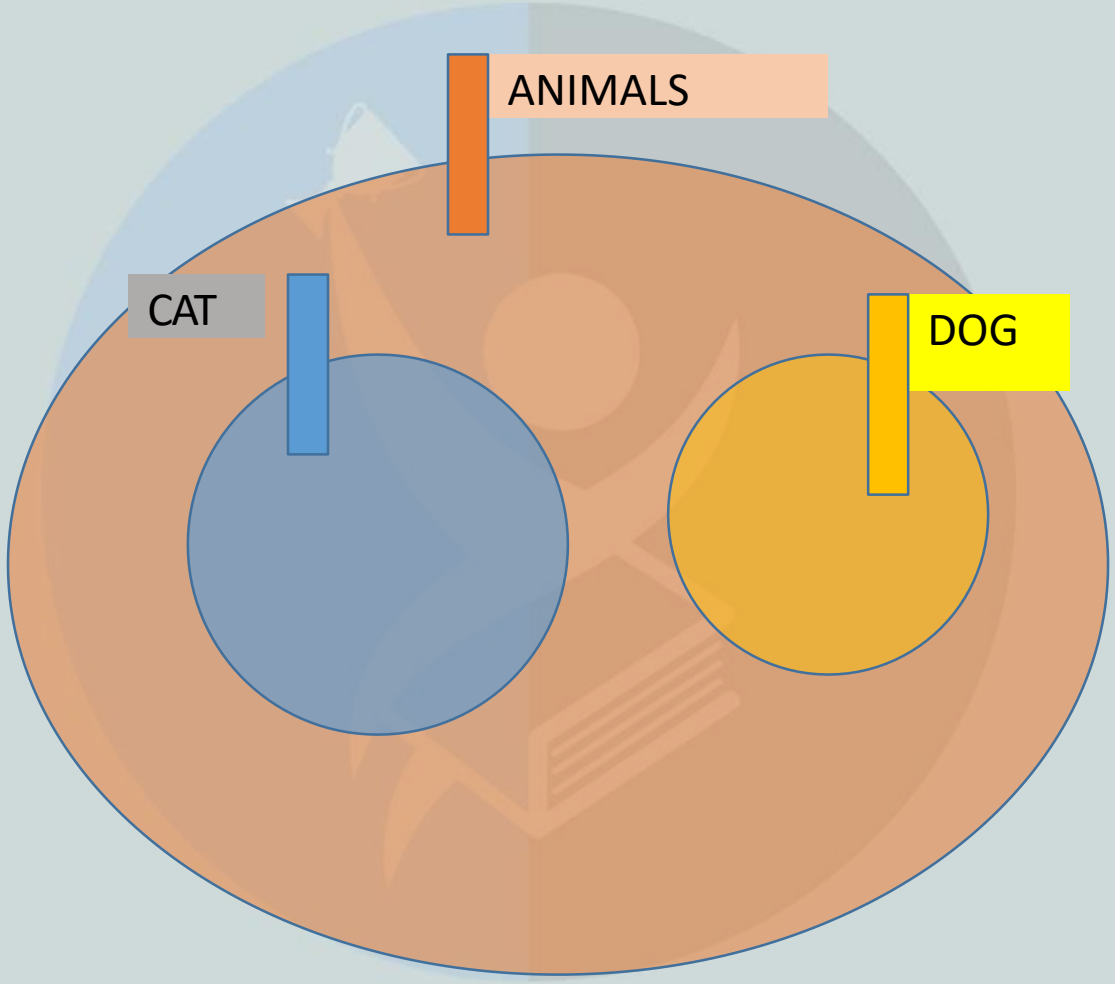
Condition 6- All Three Items Related to Each Other to Some Extent



WEEK, MONTH, DAY

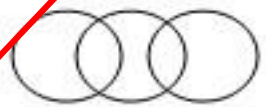


ANIMALS, CAT, DOG



Q5. Which of the following diagram shown the correct relationship among Boys, students, Girls

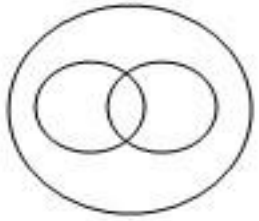
A.



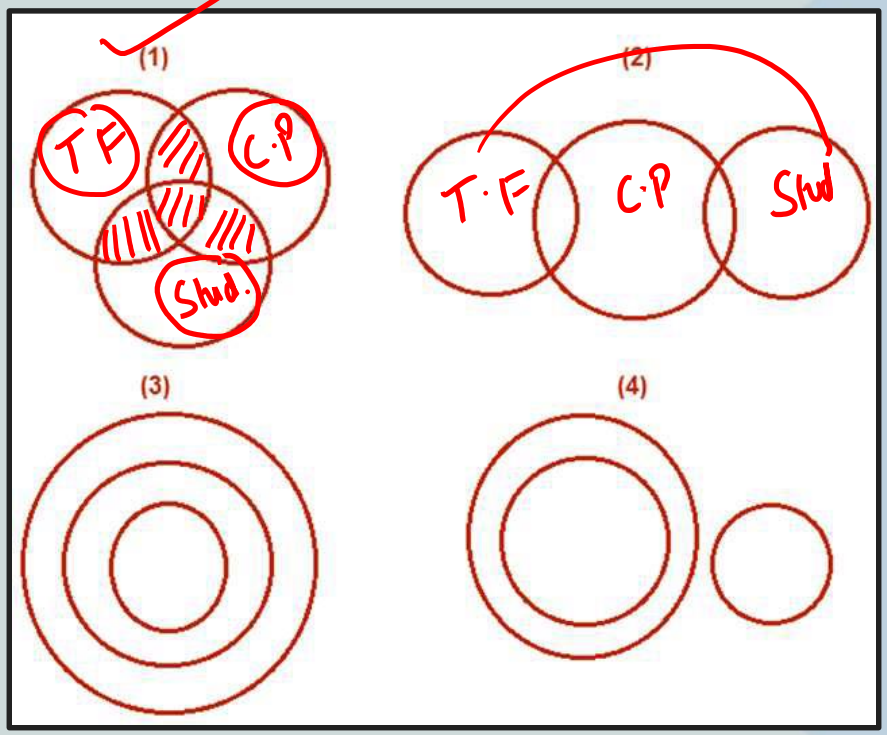
B.

C.

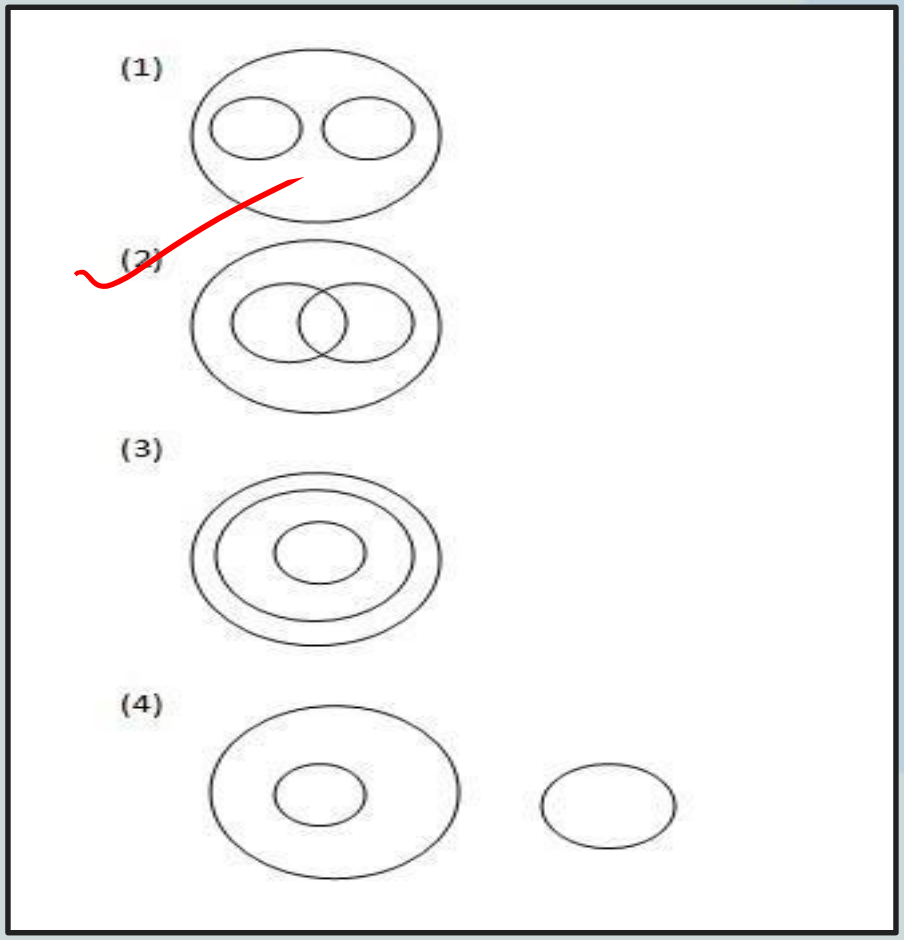
D.

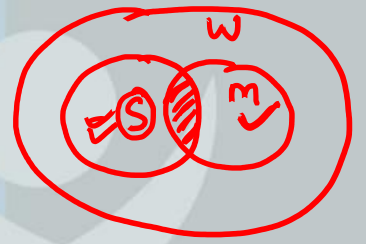


Q6. Which of the following diagrams correctly represents the relationship among tennis fans, cricket players and Students?



Q7. Which of the following diagram, the correct relationship among the three terms – Women , Sister, mother

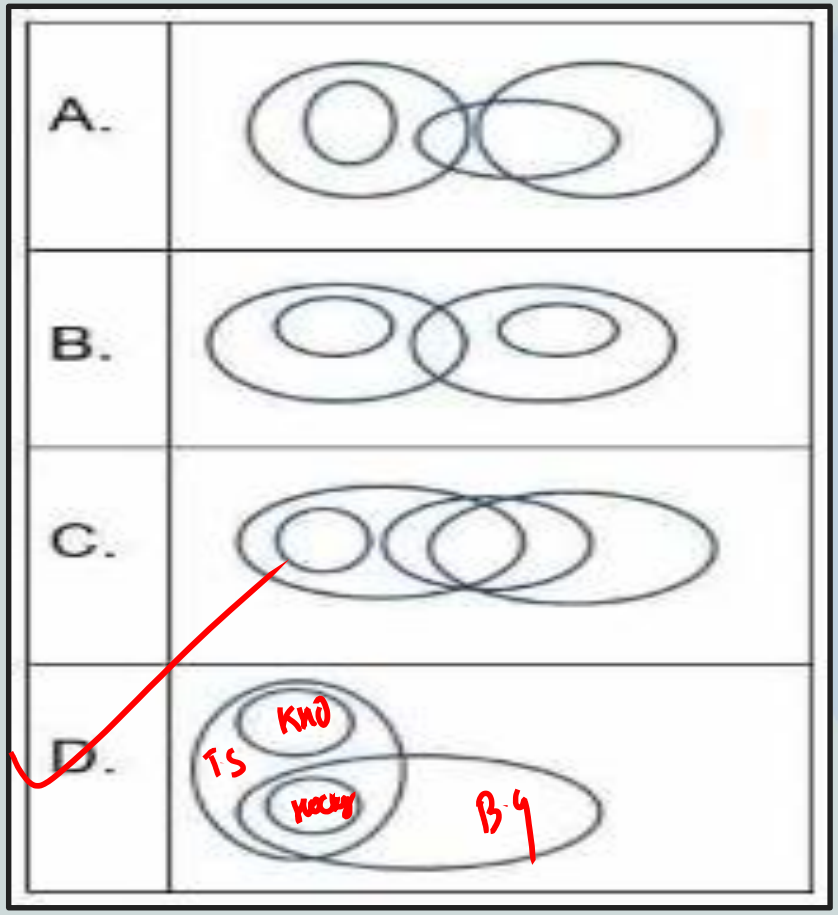


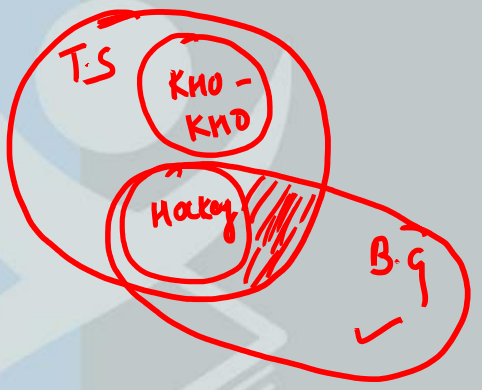


Q8. The correct diagrammatic representation of the relations among the categories

TEAM SPORTS, BALL GAMES, HOCKEY and KHO-KHO is Select the CORRECT option

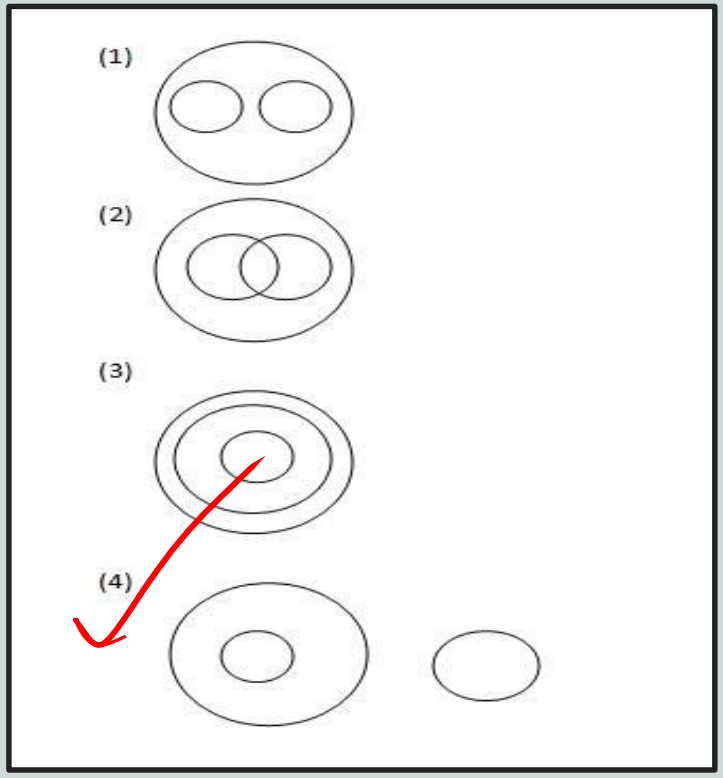
PYQ

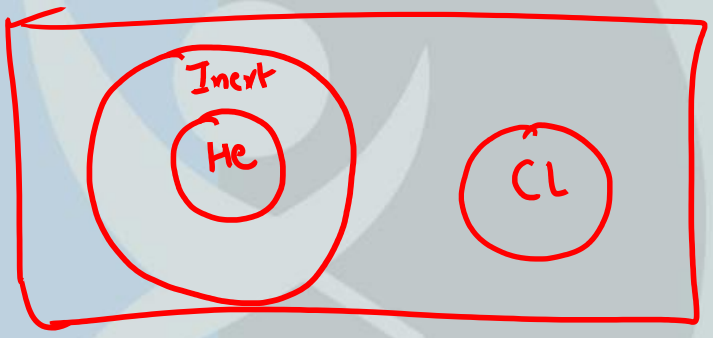




Choose the Venn diagram from the given options that best relationship amongst the following classes:

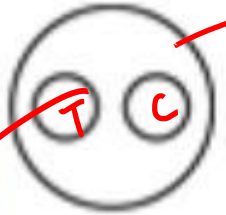
Inert Gases, Chlorine, Helium





Q1. Table, Chair, Furniture

(a)

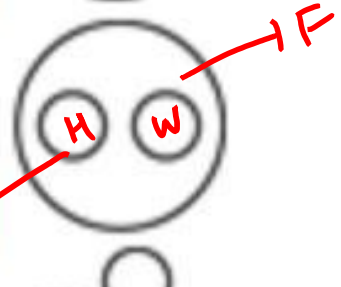
(b) 

(c)

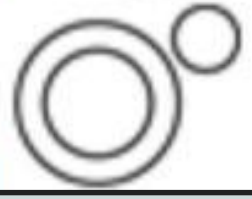
(d)

Q2. Husband, Wife, Family

(a)

(b) 

(c)

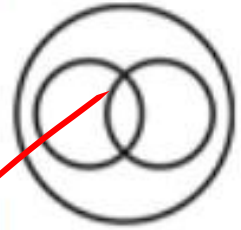
(d) 

Q3. Women, Mothers, Widows

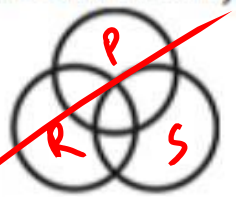
(a)

(b)

(c)

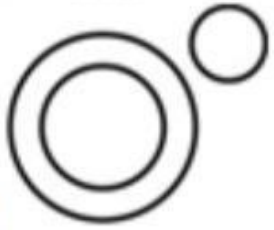
(d) 

Q.4 Professor, Researcher, Scientist

(a) 

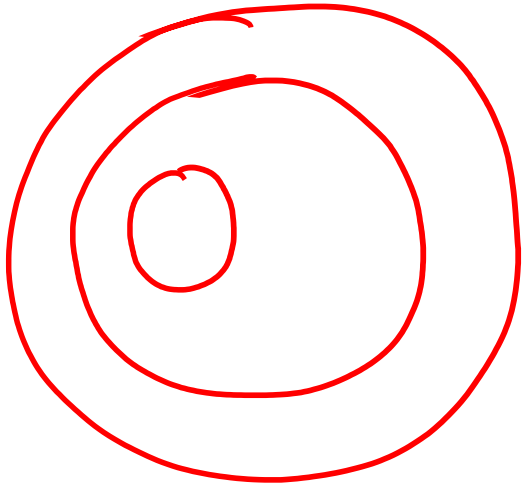
(b)

(c)

(d) 

Q5. Rhombus, Quadrilaterals, Polygons

(a)



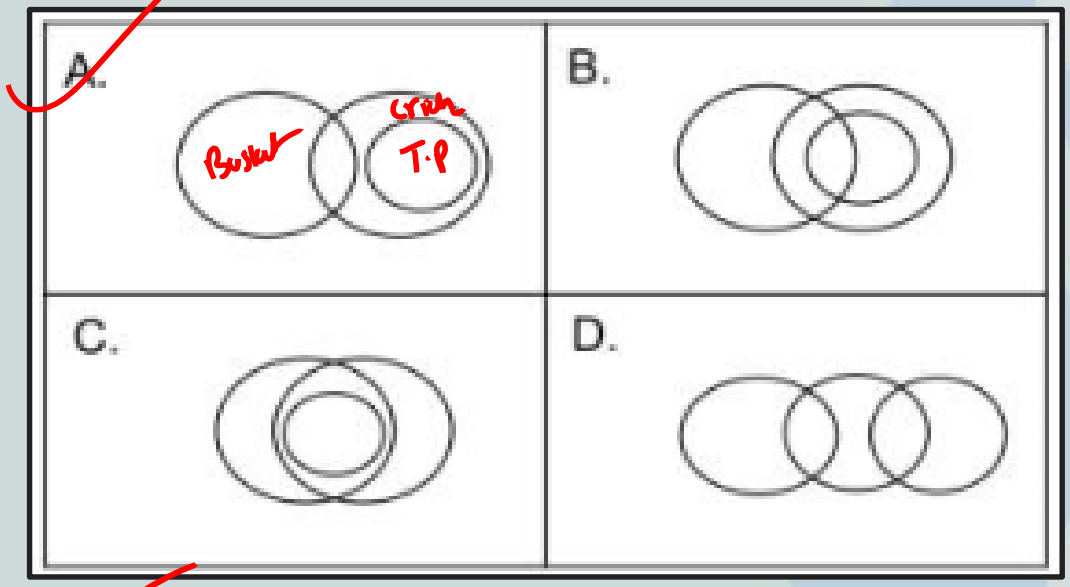
(b)

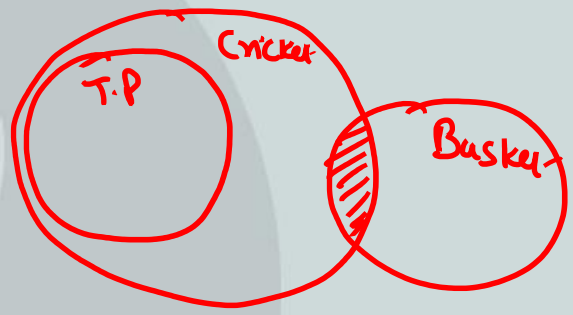
(c)

(d)

Q6. Suppose some Basketball players play Cricket, all Tennis players play Cricket, and no Tennis player plays Basketball. Which one of the following Venn diagrams correctly represents the relationship among Basketball, Cricket and Tennis players' groups?

PYQ

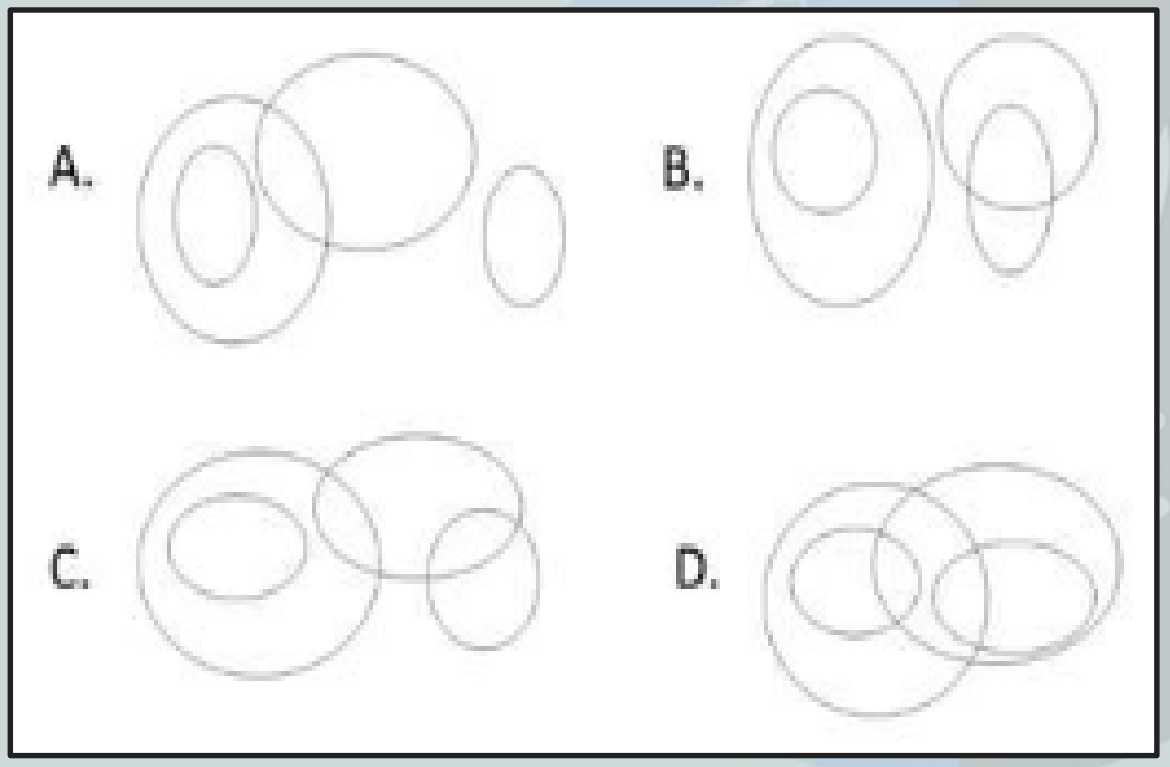




1. A
2. B
3. C
4. D

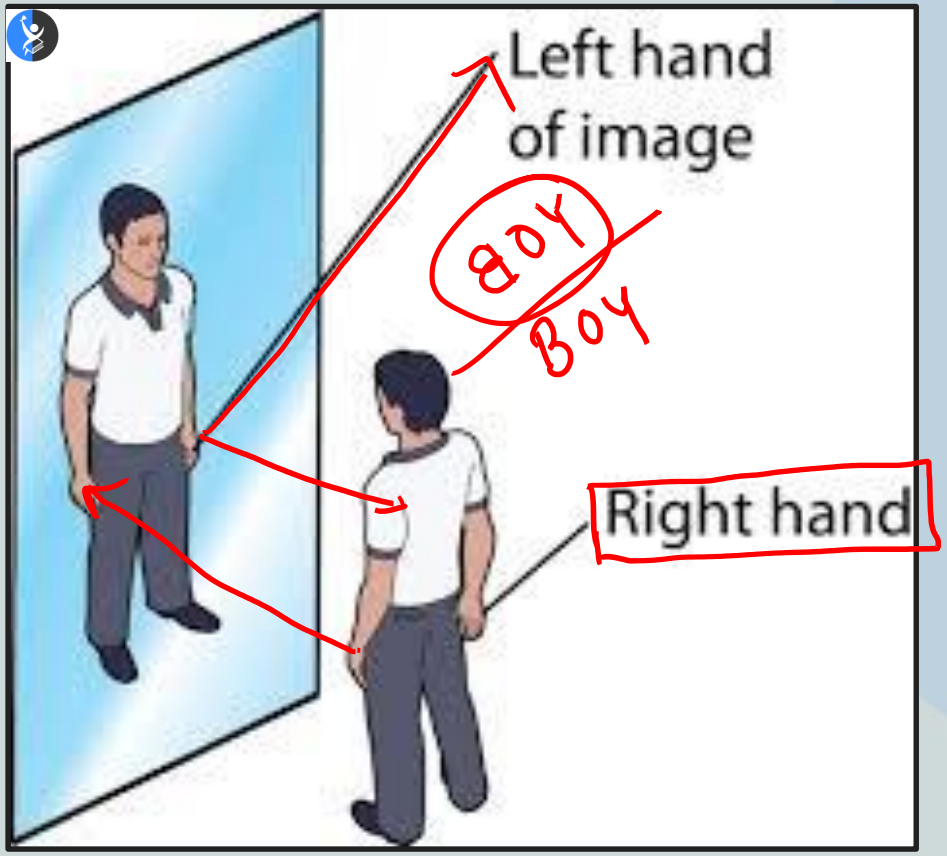
Q7. An appropriate diagram to depict the relationships between the categories INSECTS, BIRDS, EXTINCT ANIMALS and PEACOCKS is

1. A
2. B
3. C
4. D



Mirror and water images

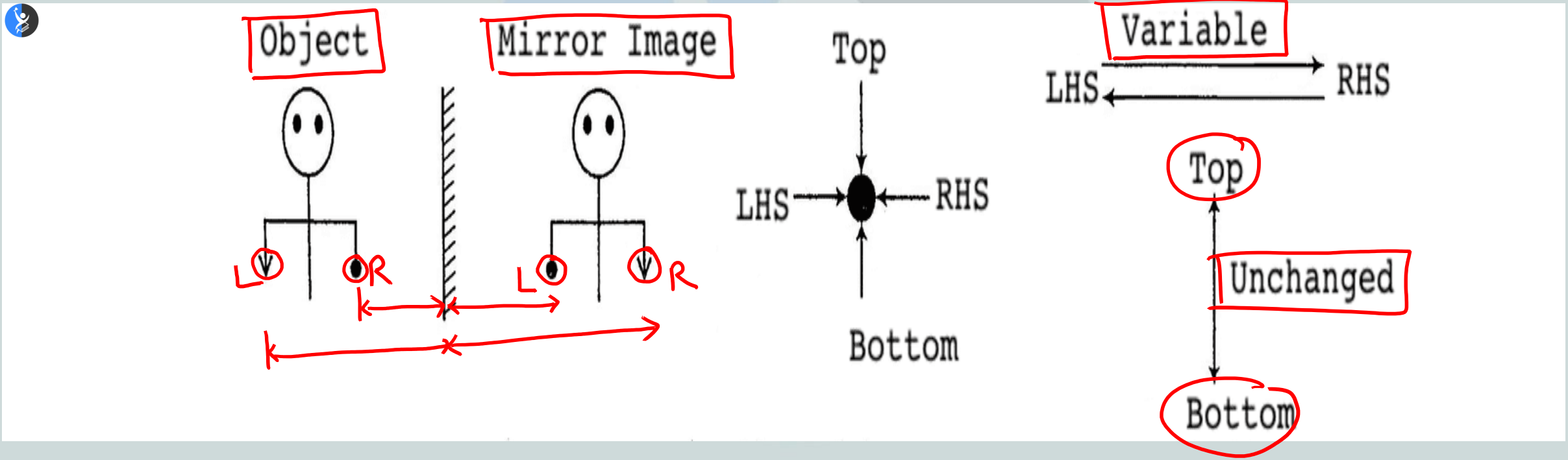
Mirror Image is the image or the reflection of an object into a mirror when that object is placed near it.



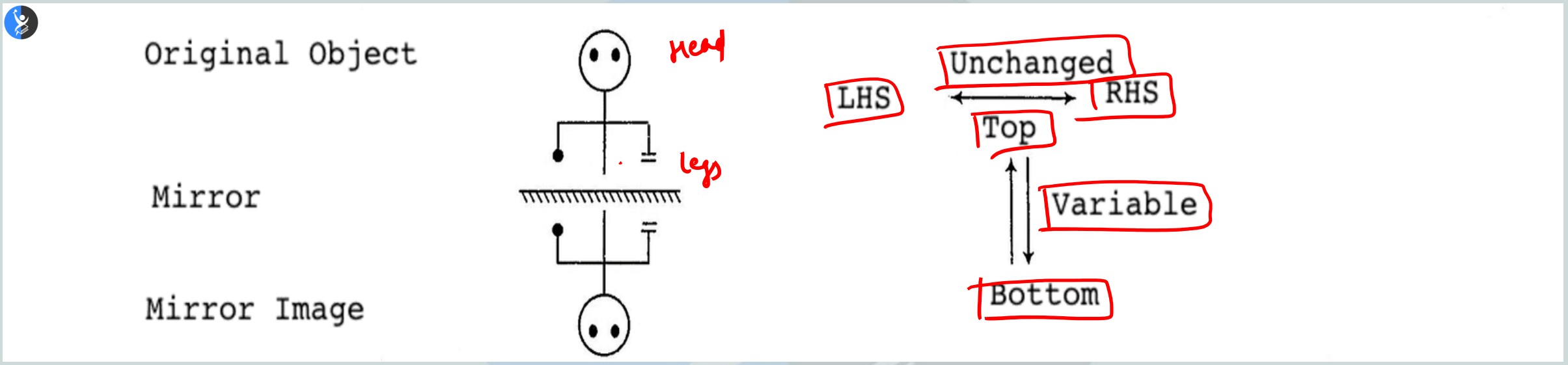
Position of Mirror

There are two positions of mirror to get the image from it which are as follow

1. When Mirror is Placed Vertically



2. When Mirror is Placed Horizontally

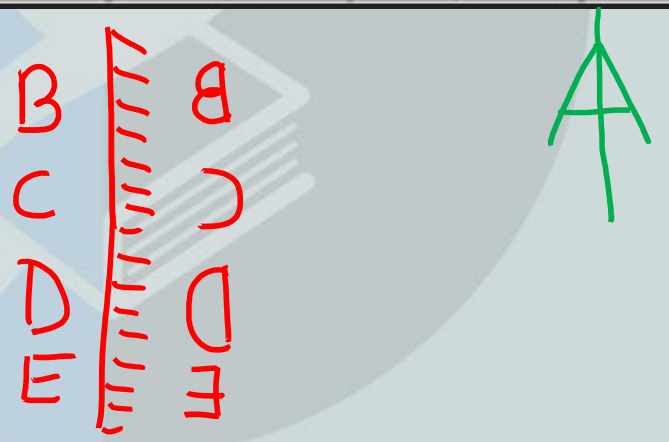


Memory Add-ons

In mirror image, if the position of mirror is not given, then always consider mirror to be placed on right side.

Mirror Image of Capital Letters

Real Image	A	B	C	D	E	F	G	H	I	J	K	L	M
Mirror Image	A	B	C	D	E	F	G	H	I	J	K	L	M
Real Image	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Mirror Image	N	O	P	Q	R	S	T	U	V	W	X	Y	Z



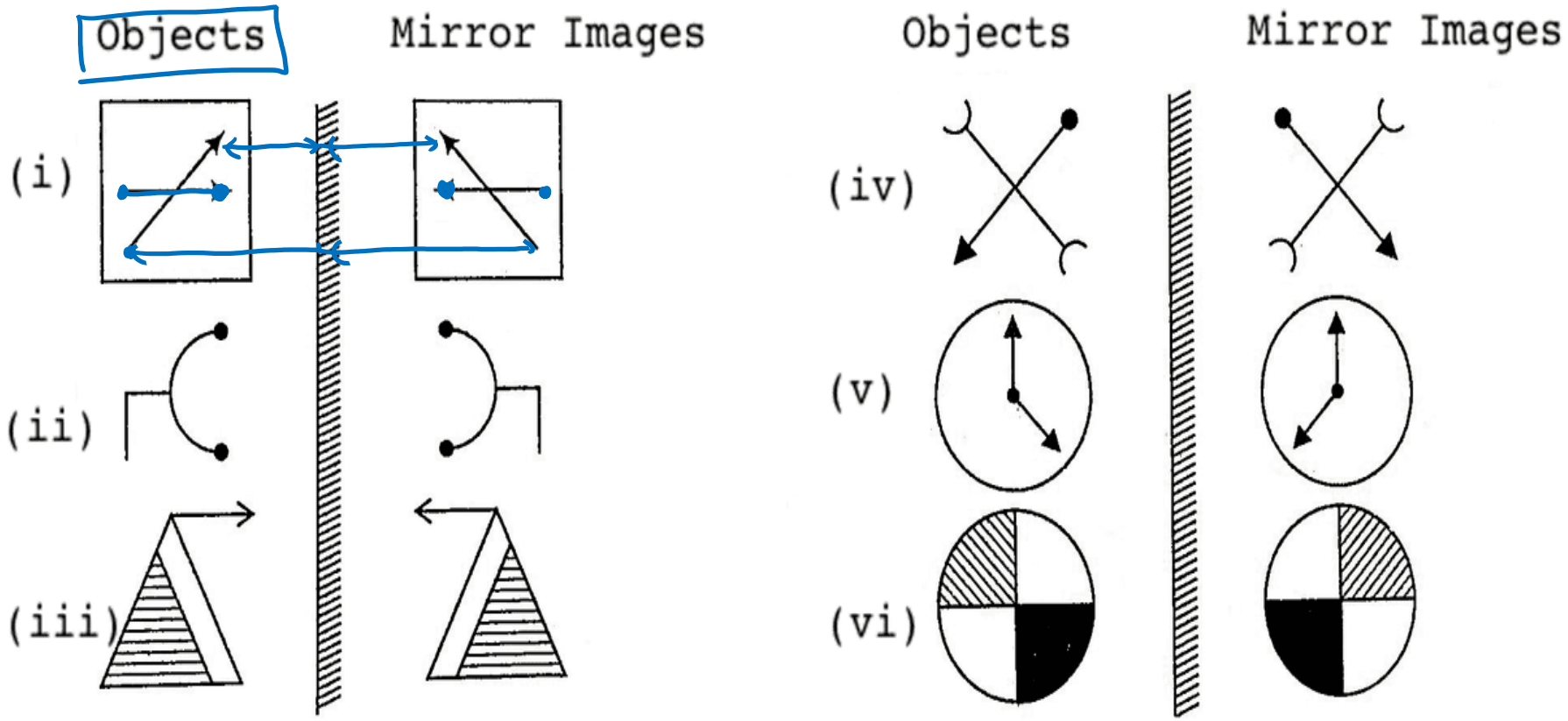
Mirror Image of Small Letters

Real Image	a	b	c	d	e	f	g	h	i	j	k	l	m
Mirror Image	ɒ	d	ɔ	b	ɘ	ʇ	ϱ	ɥ	i	ɾ	ʞ	l	m
Real Image	n	o	p	q	r	s	t	u	v	w	x	y	z
Mirror Image	n	o	q	p	ɿ	ƨ	ɟ	u	v	w	x	ʏ	z

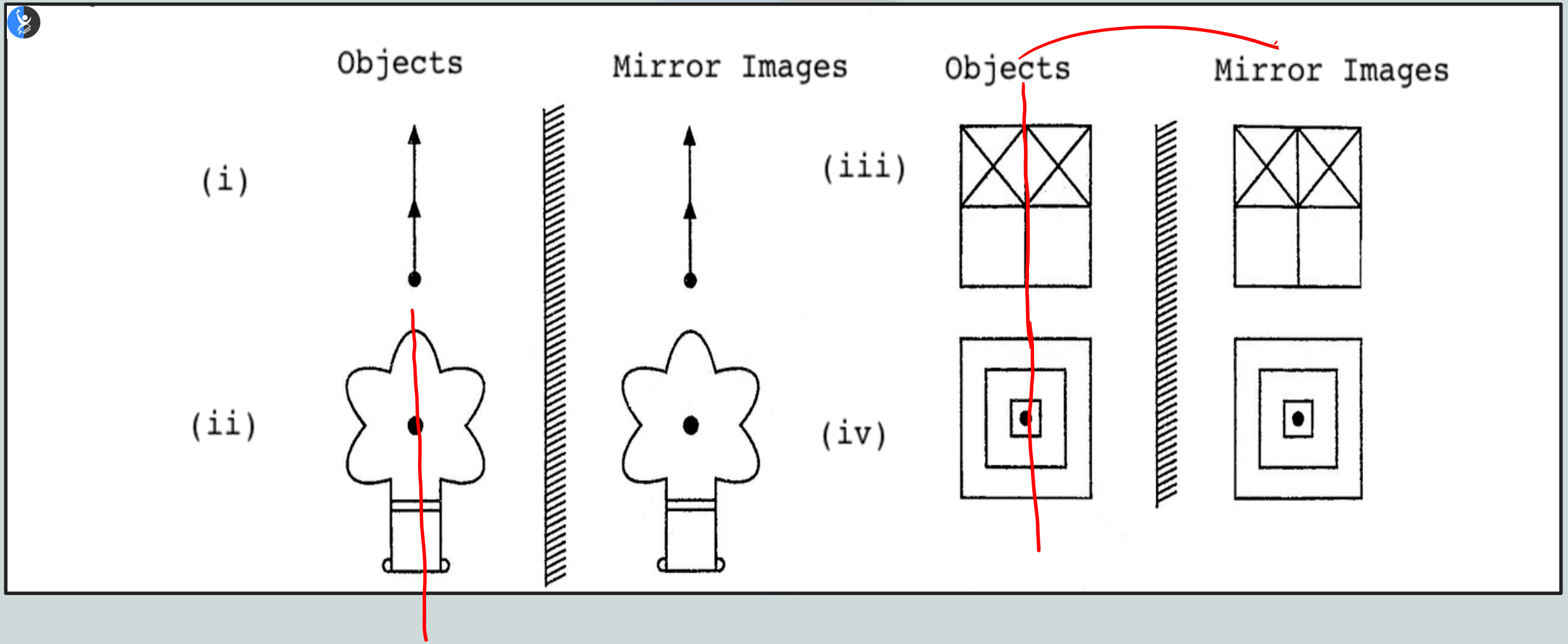
Mirror Image of Numbers

Real Image	1	2	3	4	5	6	7	8	9	0
Mirror Image	ɾ	ƨ	Ɛ	↊	ƨ	ϭ	ↁ	8	ϱ	0

Objects having Different Mirror Images



Objects having Identical Mirror Images



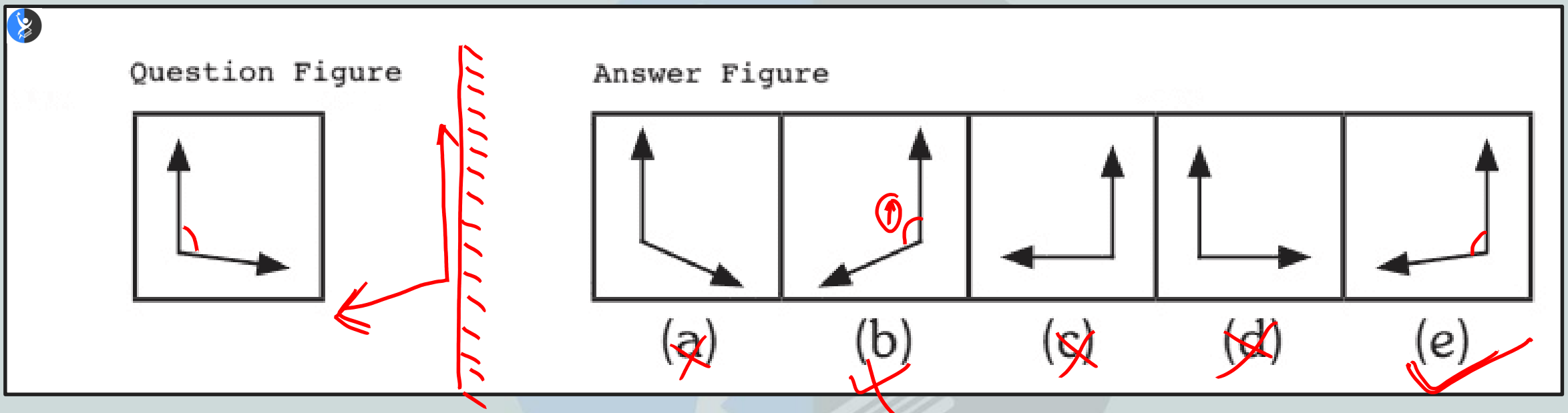
Different types of questions covered in this section

- ✓Based on Vertical Mirror
- ✓Based on Horizontal Mirror
- ✓Mirror image of Letters and Numbers
- ✓Mirror Image of Clocks

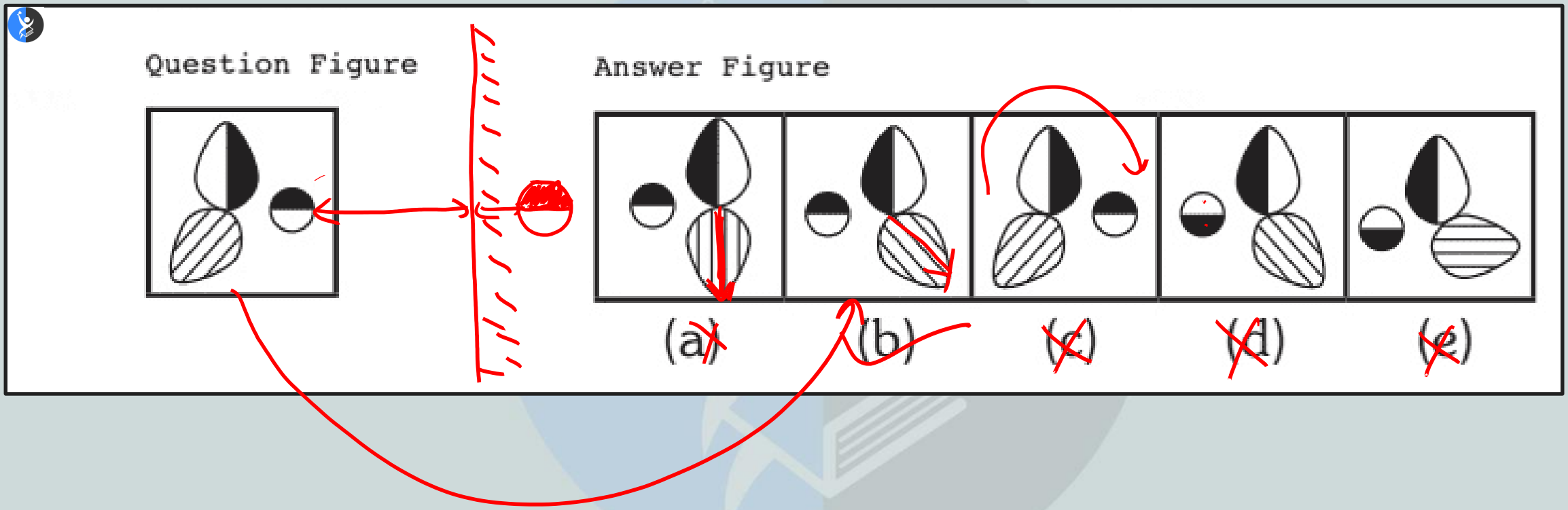
Memory *Add-ons*

For finding mirror image of object/figure, try to overlap the figure given in the options, along the mirror as the axis, then the option figure which exactly overlaps the original figure is the correct answer.

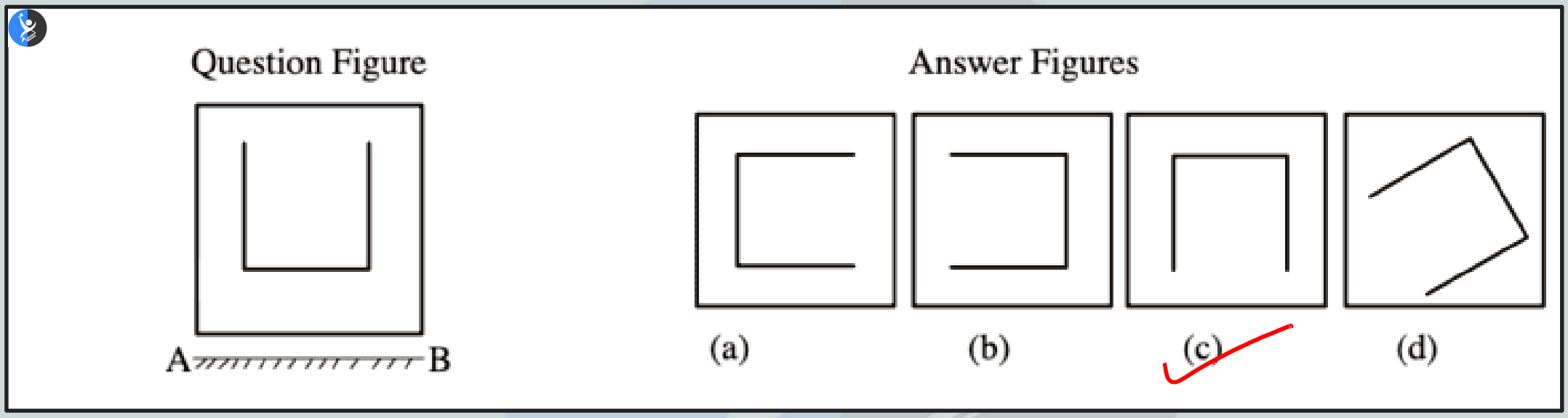
Choose the alternatives which is closely resembles the mirror image of the given combination.



Choose the alternatives which is closely resembles the mirror image of the given combination.

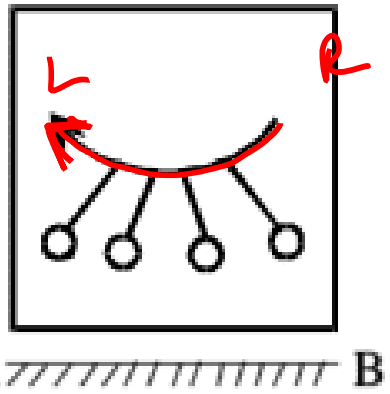


Choose the correct mirror image from the answer figures (a), (b), (c) and (d).

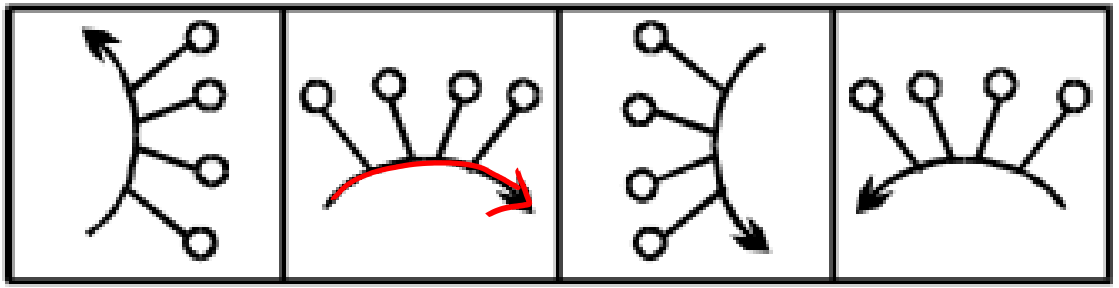


Choose the correct mirror image from the answer figures (a), (b), (c) and (d).

Question Figure

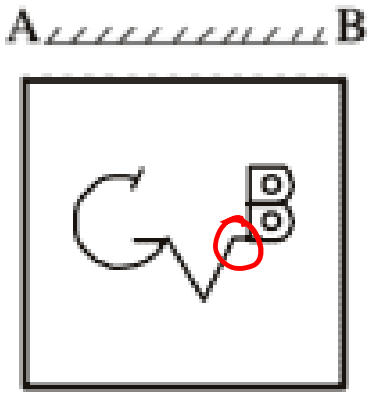


Answer Figures

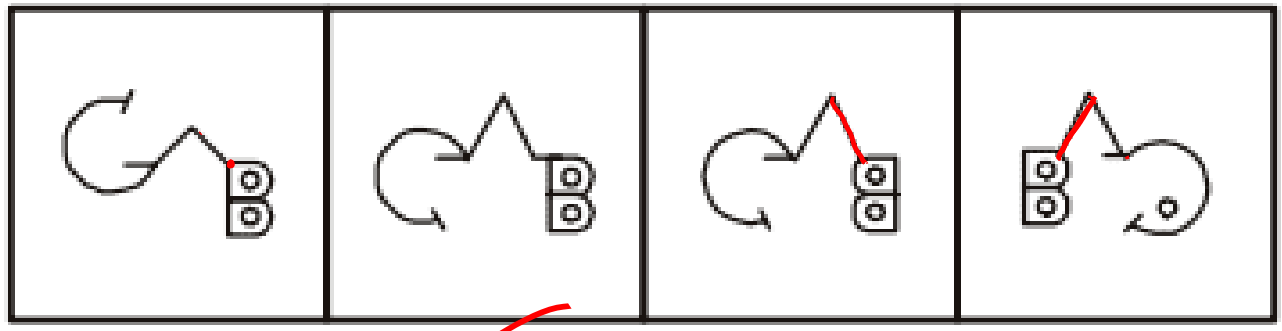


Choose the correct mirror image from the answer figures (a), (b), (c) and (d).

Question Figure



Answer Figures



(a) (b) (c) (d)

FUN

(a) ꓤUꓞ

(b) ƎUN

(c) ꓤUꓶ

(d) NUꓶ

12698

(a) 12698

(b) 12698

(c) 12968

(d) 12698

7 6 M P 0 3 J

(a) J 3 E 0 9 M 6 7

(b) 1 E 0 M 9 6 7

(c) 1 E 0 9 M ə 7

(d) 1 E 0 9 M ə 7

PRAYER

(a) ꟼꓤAYƎꓤ

(b) ꓤƎꟼAƎꓤ

(c) ꓤƎYAꓤꟼ

(d) ꟼꓤAYƎꓤ

Mirror images of clock

✓Subtract the given time by 11:60

11 : 60
5 : 15
6 : 45

A clock seen through a mirror show quarter to three. What is the correct time shown by the clock?

(a) 8 : 15 (b) 9 : 12 (c) 8 : 17 (d) 9 : 15

11 : 60
2 : 45
9 : 15

A clock seen through a mirror show quarter past three. What is the correct time shown by the clock?

(a) 9 : 45 (b) 9 : 15 (c) 8 : 45 (d) 3 : 15

3 : 15

11 : 60
3 : 15
8 : 45

12 : 10

11 : 60
00 : 10
11 : 50

11 : 40

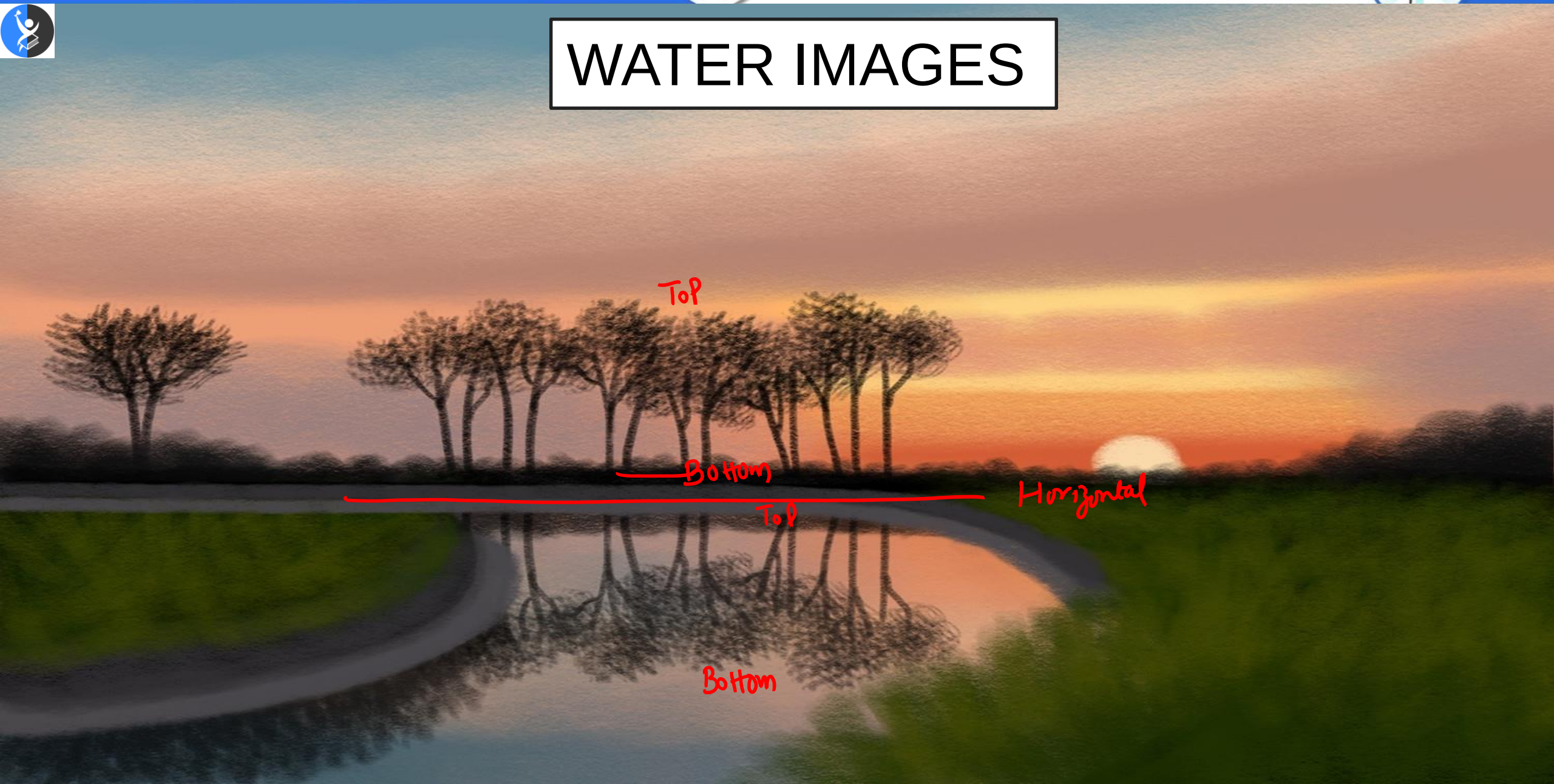
11 : 60
11 : 40
00 : 20

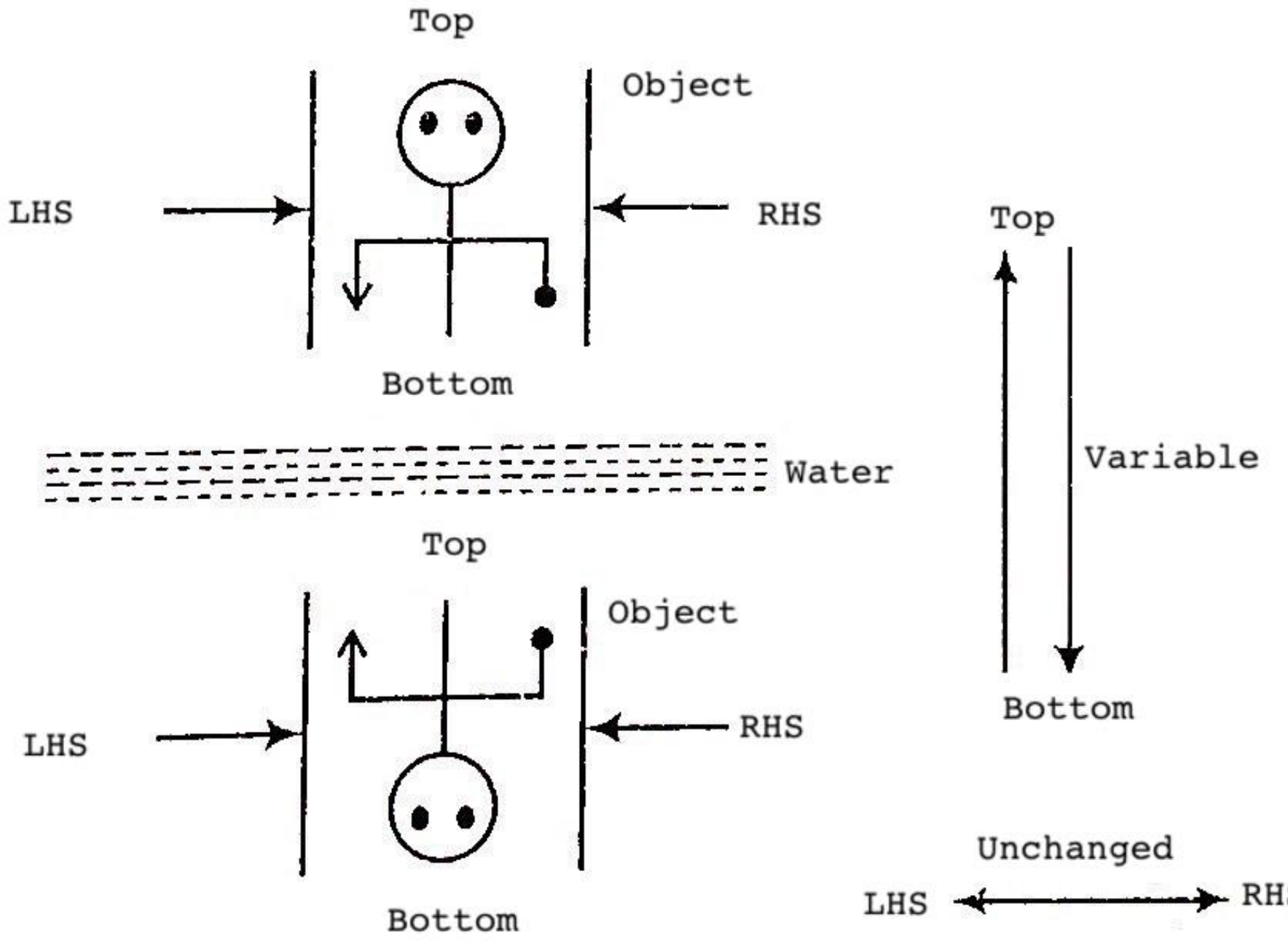
12 : 20

Mirror
11 : 60
11 : 15
00 : 45
12 : 45

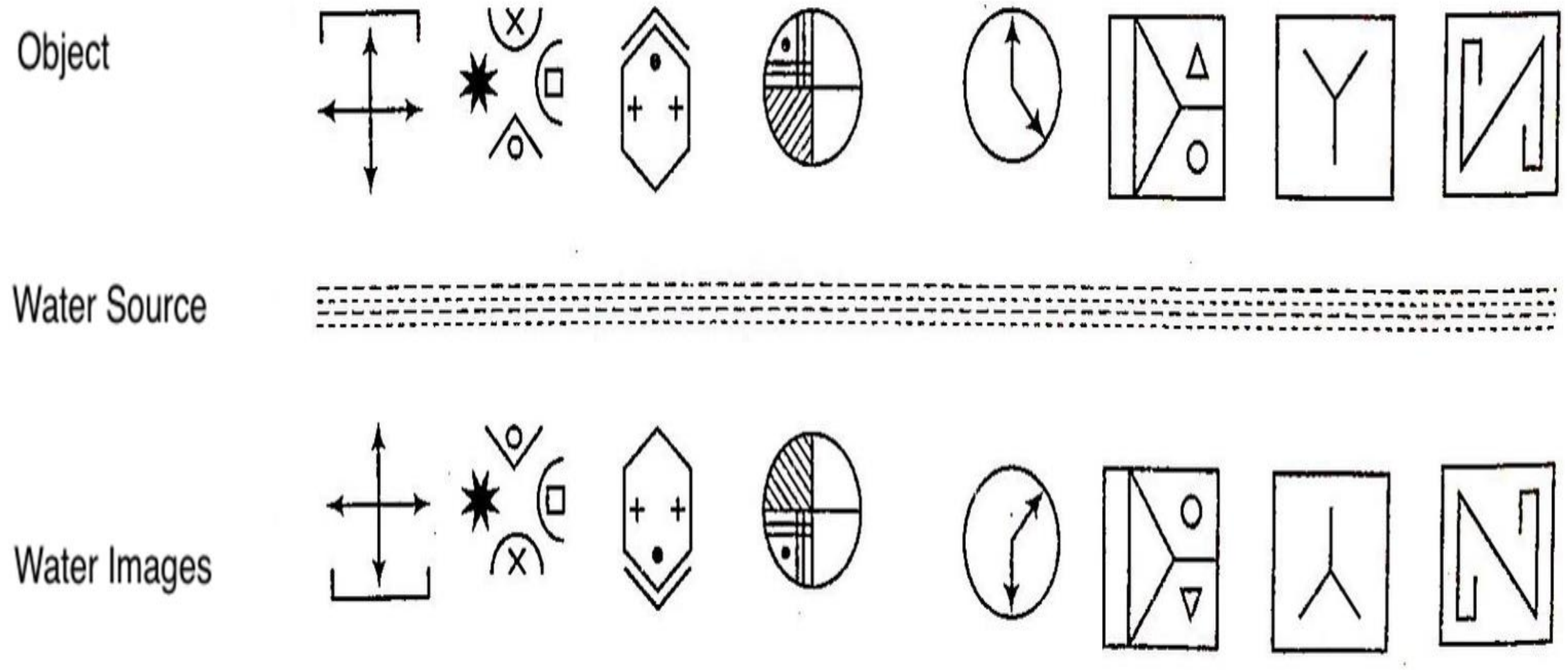
00 ≡ 12

WATER IMAGES

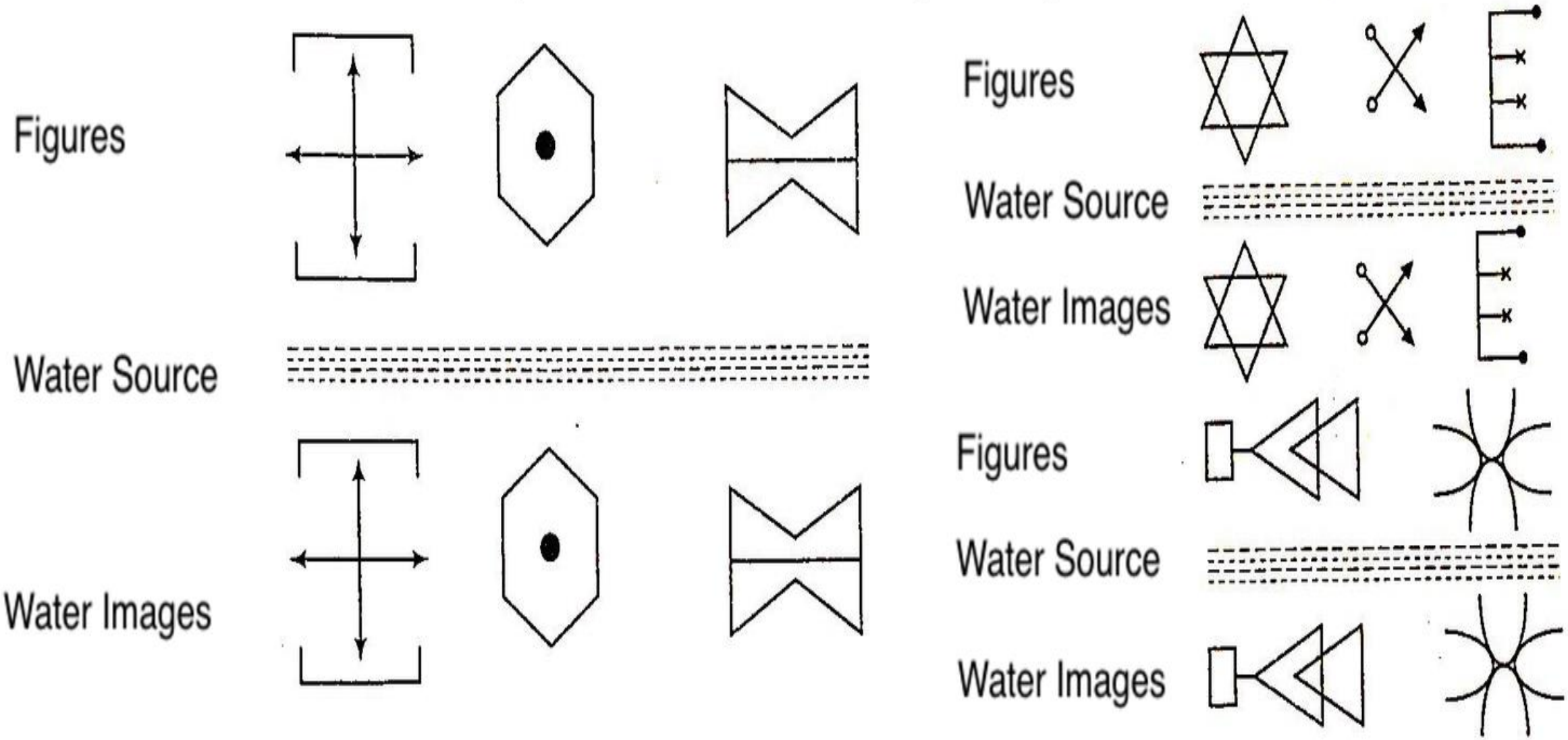



Top
Object
LHS
RHS
Bottom
Water
Top
Object
LHS
RHS
Bottom
Top
Variable
Bottom
Unchanged
LHS
RHS

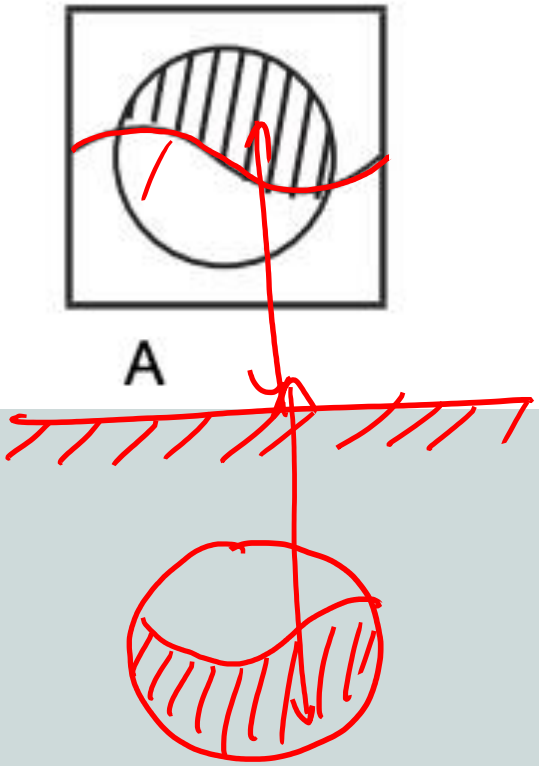
Example of Different Water Images of Figures

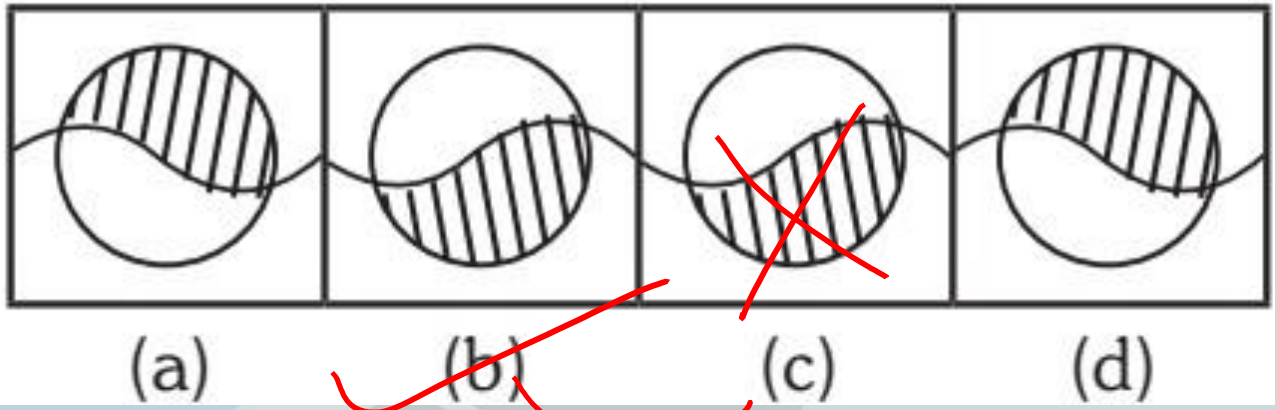


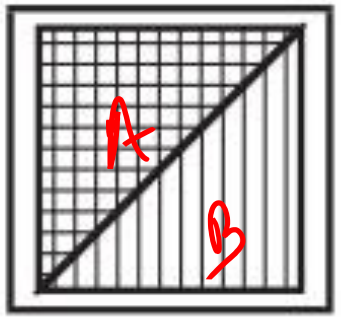
Examples of Identical Water Images of Figures

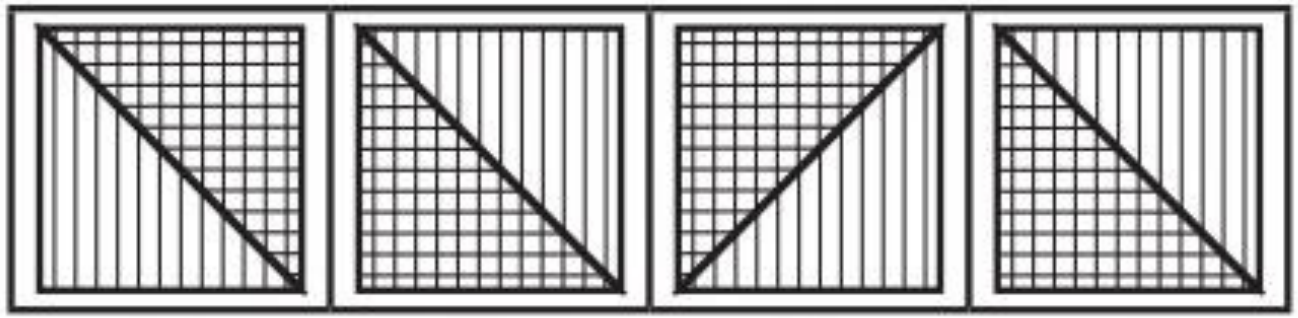


Type #1 : Water Image of Figure/Symbol/Sign

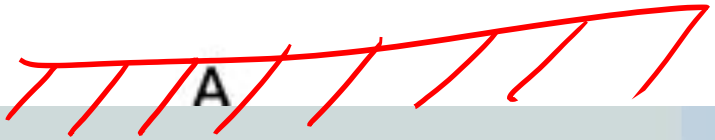


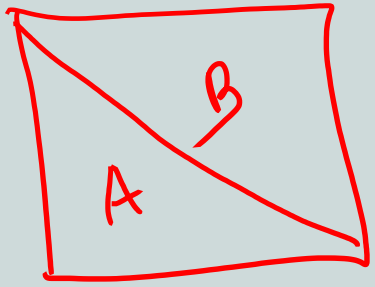


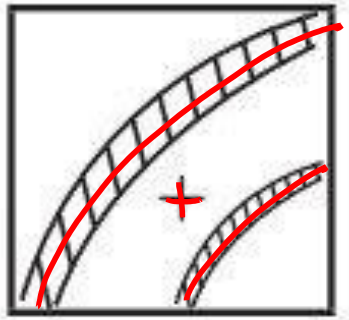




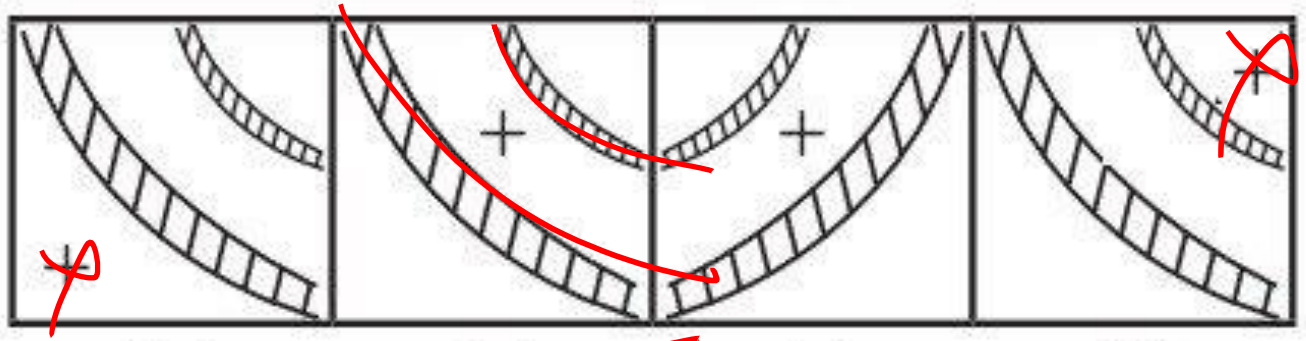
(a) (b) (c) (d)



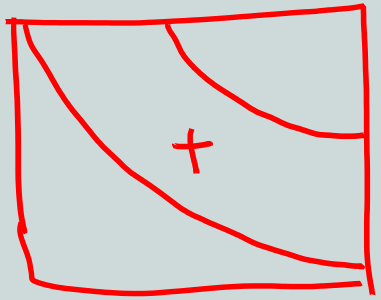


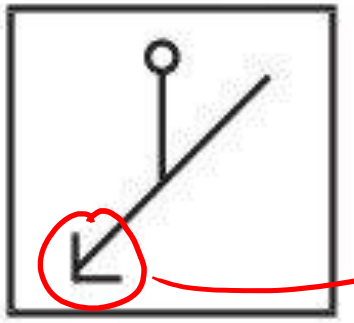


A

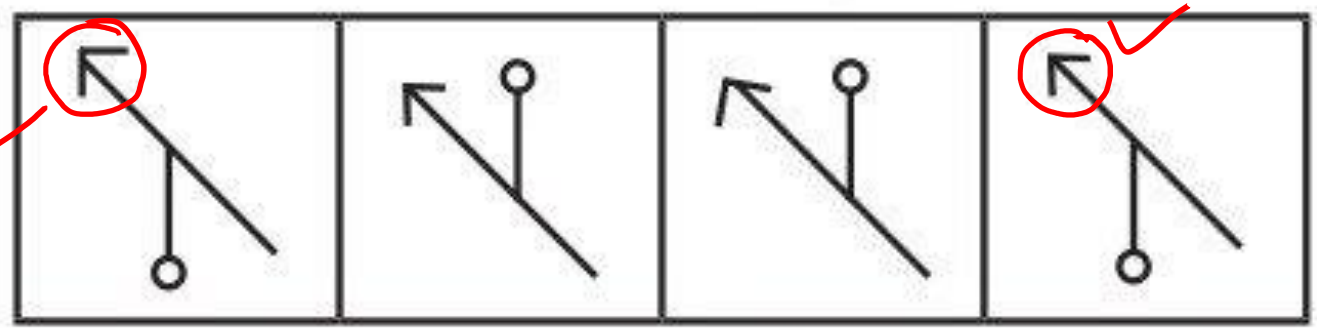


(a) (b) (c) (d)

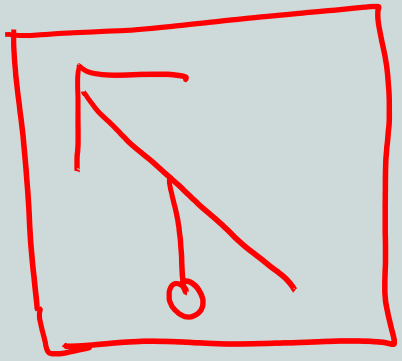




A



(a) (b) (c) (d)



Type #2 : Water Image of Letters and Numbers

Water Image of Capital Letters :

Letters	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Water Image	∀	B	C	D	E	Ⅎ	⅁	H	I	ſ	⋊	⅂	W	И
Letters	O	P	Q	R	S	T	U	V	W	X	Y	Z		
Water Image	O	ꟼ	Ꝙ	Я	Ƨ	⊥	∩	Λ	M	X	⅄	Z		

Water Image of Small Letters :

Letters	a	b	c	d	e	f	g	h	i	j	k	l	m	n
Water Image	ɐ	p	c	q	ɘ	ɬ	ɑ	ɥ	¡	ɾ	ʞ	l	ɯ	u
Letters	o	p	q	r	s	t	u	v	w	x	y	z		
Water Image	o	b	d	ɹ	ƨ	ʇ	n	ʌ	ʍ	x	ʎ	z		

Water Image of Digits :

Numbers	0	1	2	3	4	5	6	7	8	9
Water Image	0	⅃	Ƨ	Ɛ	ᔭ	ƨ	ɐ	ㄥ	8	ɓ

E8t4e9C

(1) ∃8ɟ4e9Ɔ

(2) E8ɟ4e9Ɔ

(3) ∃8ɩ4e9C

(4) E8ɩ4e9C

E | ∃

Ans

t

f

bridge

(1) pɹɪqʤe

(2) pʟɪqʤe

(3) pɹɪqʤe

(4) pʟɪpʤe

US91Q4M5W3

(1) US91Q4M2W3

(2) US91Q4M2W3

(3) US91Q4M2W3

(4) US91Q4M2W3

NUCLEAR

(1) RAECUN

(2) NUCLEAR

(3) NUCLEAR

(4) NUCLEAR

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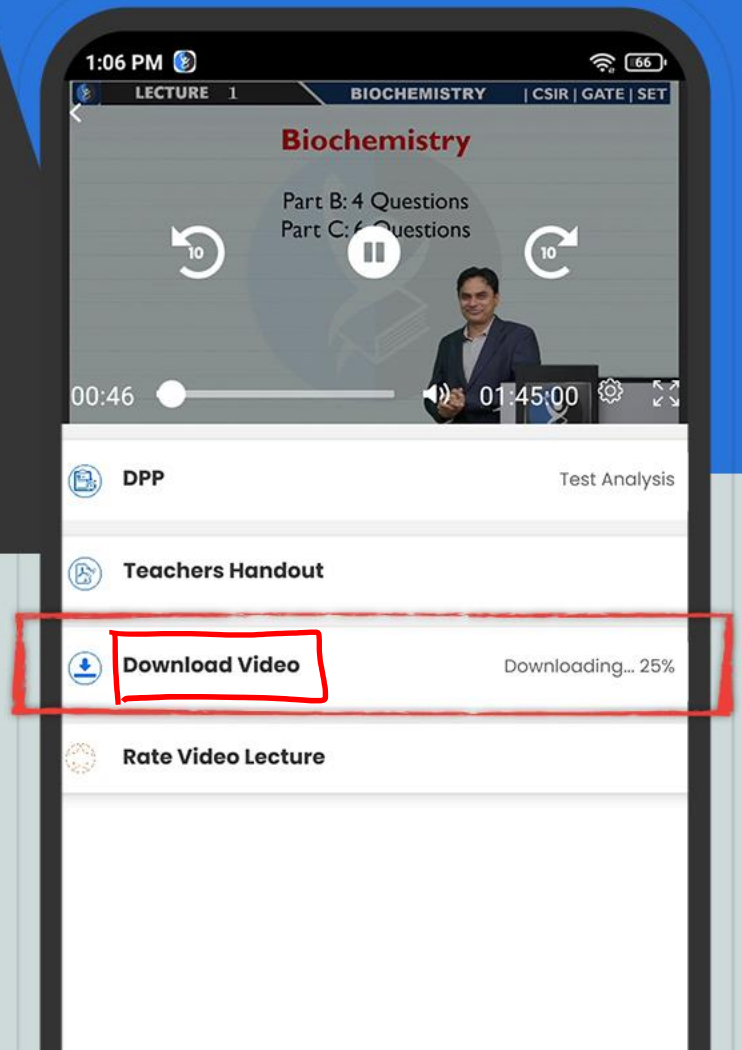

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